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RHODE ISLAND STATE AIRPORT SYSTEM PLAN

STATE GUIDE PLAN ELEMENT 640

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CHAPTER 1: INTRODUCTION AND BACKGROUND *(rev.)*

CHAPTER 2: INVENTORY *(rev.)*

CHAPTER 3: PROJECTIONS OF AVIATION DEMAND *(rev.)*

CHAPTER 4: AIRPORT AND SYSTEM PERFORMANCE

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640.01 Introduction and Background

The Rhode Island State Airport System Plan (ASP) is a strategic plan for the six state-owned commercial and general aviation airports looking forward to the year 2021. This Plan identifies actions needed to ensure that Rhode Island maintains an airport system that is capable of meeting the state's long-term transportation and economic needs.

Rhode Island's airport system consists of the following airports:
T.F. Green Airport in Warwick
North Central Airport in Smithfield
Quonset Airport in North Kingstown
Robert F. Wood Airpark in Middletown (also referred to as Newport Airport)
Westerly Airport in Westerly
Block Island Airport in New Shoreham

The previous State Airport System Plan was developed in 1984 by the Rhode Island Statewide Planning Program and last amended in 1992 to accommodate the terminal expansion at T.F. Green Airport. As we have surpassed the planning horizon of the 1984 Plan and because of the dramatic changes in the aviation industry and state environment, it was determined that this current State Airport System Plan would essentially have to be an entirely new plan rather than an update of the 1984 Plan.

This chapter discusses the planning context, describes the purpose of an airport system plan, describes the planning hierarchy, and then discusses the planning process used in the development of this plan.

01-01 Planning Context

Aviation Industry
Since the time of the last update, the commercial airlines and general aviation have undergone dramatic changes, including the rise of regional air carriers, fractional ownership operators and emergence of successful low-cost carriers, as well as the reemergence of small general aviation. On the other hand, the traditional "hub and spoke" routing system has declined in favor of more direct flights. On a regional level, T.F. Green Airport, like Manchester-Boston Regional Airport, has assumed a new role in New England because of its proximity to Boston Logan International Airport.

In 1992, the responsibility for operating, maintaining and developing the state-owned airports was transferred from the Rhode Island Department of Transportation to the newly created Rhode Island Airport Corporation (RIAC). RIAC has since overseen an explosion of growth at the state's only primary commercial air service airport. In order to better focus on T.F. Green, the management of the five other state airports was contracted to Landmark Aviation (formerly Hawthorne Piedmont).

The September 11, 2001 attacks have had profound and lasting impacts on the aviation industry. In order to ensure the security of the traveling public and more effectively screen passengers and baggage, the Transportation Security Administration was created as a new agency within the U.S. Department of Transportation and ultimately became part of the new Department of Homeland Security. Airlines suffered huge losses as a result of terrorism, leading to a federal aid package that provided for continuing air service, but for a number of reasons the financial stability of several large carriers remains uncertain.

In the legislative arena, there have been two noteworthy events: 1) At RIAC's request, the General Assembly enacted airport zoning requirements. Specifically, Title 1 Aeronautics of the Rhode Island General Laws, Chapter 1-3 Airport Zoning mandates that RIAC formulate airport approach plans for each state airport and also requires that municipalities establish airport hazard areas under their police powers. 2) Also at RIAC's request, the General Assembly repealed the sales tax on aircraft and aviation in 2005. While this is anticipated to have a positive effect on general aviation, there is not yet enough data to quantify the impacts.

State Planning Environment
The planning environment in the state has also changed quite dramatically since 1984. The Comprehensive Planning and Land Use Regulation Act, passed in 1988, mandates that all 39 cities and towns prepare community comprehensive plans to be submitted to the State for approval. The review process set up by the Act provided for state agency review as well as a provision that state agencies would be bound by the goals and policies of the plan following state approval. This is further explained later in this chapter in the section on the State Guide Plan.

Since 1984, eighteen State Guide Plan elements have been adopted by the State Planning Council, and seven elements have been updated. There are two elements that are particularly relevant to the ASP: 1) Land Use 2025 (2006) identifies an Urban Services Boundary that will focus growth in areas served by public water and/or sewer. All of the airports, including Block Island, lie within the Urban Service Area. 2) Transportation 2025 (2004) focuses on means to reduce congestion and enhance mobility, especially through better public transportation and improved intermodal connections. One major project in support of this goal is an intermodal station at T.F. Green Airport that will have commuter rail service to Providence and Boston, as well as house all of the car rental companies. A moving sidewalk will provide direct access from the station to the terminal. A groundbreaking ceremony for the station was held in 2006. The State Guide Plan is discussed in more detail later in this chapter.

01-02 Purpose of the Plan

The ultimate result of the planning process should be the establishment of a viable, balanced, and integrated system of airports with roles of individual airports clearly defined and developed in consideration of other state goals and policies. This plan serves two primary purposes: 1) in the aviation community as used by airport operators and federal funding agencies, and 2) as an element of the State Guide Plan. Both are discussed below:

Aviation
The ASP defines the roles of Rhode Island's six airports with respect to other airports both within and outside the State. It serves as a foundation for airport master plans and for a continuous airport planning process. The plan documents the public use airports and outlines improvements that are necessary for the airport to function successfully in its designated role and to meet the current and future air transportation needs of state. It is also used to study and monitor the performance of the entire aviation system so as to understand the interrelationship of the member airports. It provides guidance to the capital budgeting process on how to maximize the system benefits of aviation investment and how to align federal priorities with state and local objectives.

While the future development requirements can be broadly defined by this airport system plan, it can not answer such questions as: Where should new buildings be located? Where should aircraft parking be expanded? Is a runway extension feasible? What are the engineering requirements or environmental impacts of specific projects? A separate airport master planning process exists to answer these questions. That process is described later in this chapter.

An obvious purpose of any plan is to revisit old assumptions and policies. The 1984 Airport System Plan, as a matter of state policy, designated T.F. Green as a "medium haul" airport serving

destinations within 1500 miles. This System Plan update suggests that flexibility to serve an expanded service area and new markets should be explored.

State Guide Plan
In Rhode Island, the State Airport System Plan is also an element of the State Guide Plan. Our state benefits from a tradition of statewide planning, made possible in part because of our small size. In 1964 the Statewide Planning Program was established. It is charged with preparing and maintaining the State Guide Plan, currently consisting of 28 themed elements, and centralizing and integrating long-range goals, policies and plans with short-term projects and plans. There are several other transportation elements that address other modes including surface transportation (highway, bicycle, and transit), freight rail, and waterborne passengers.

The State Guide Plan promotes planning coordination in several ways, being used as both a resource and review mechanism for projects and implementation measures, such as:

- Review of local comprehensive plans (see section below)
- Proposals requesting federal funds
- Applications for U.S. Army Corps of Engineers permits
- Environmental Impact Statements
- R.I. Economic Development Corporation projects
- Projects being reviewed by the Energy Facility Siting Board
- Applications for various loans, grants, or other federal or state financing.
- Rules and regulations promulgated by state agencies
- Property leases and conveyances proposed before the State Properties Committee

One of the most important functions of the State Guide Plan is in the review of local comprehensive plans. Under the *Rhode Island Comprehensive Planning and Land Use Regulation Act* (1988), Rhode Island cities and towns must have a locally adopted Community Comprehensive Plan that must be updated at least once every five years. The review process includes state agency goals and policies, and in the same way that local plans and projects must be consistent with the State Guide Plan, state projects and programs must also be consistent with local comprehensive plans after the plan is certified by the state. This is a key provision considering the sometimes unavoidable tension that can be caused by state activities within municipalities, such as airports, landfills, correctional facilities, and other uses. The Airport System Plan is a single element of the State Guide Plan. The goals and policies of one element can not be pursued to the exclusion of other applicable elements. The State Guide Plan, in its entirely, must be used to ensure a balanced review of projects, plans, and proposals.

While the Act is a framework for planning coordination, nearly all land use decision-making remains at the local level. With the exception of federal and state-owned property, and environmental protection regulations, all decisions about which land uses to permit are made at the municipal level. Adopted local plans set the basis for the exercise of key local implementing powers for land use in the form of zoning (which must be consistent with the adopted comprehensive plan) and development review ordinances. Land use regulations go far beyond the listing of uses to which land can be put within certain zones. They define the shape and scale of building envelopes, site design, industrial performance standards, and public improvement standards for new development.

01-03 Planning Process

Planning Hierarchy
Aviation planning occurs at many levels from the national level to individual airport master plans. It is important to note, that an “aviation system” can be defined by any number of factors. While the most common factor in defining a system is the state in which the airports are located, aviation

systems can also be defined on a national, regional, metropolitan, or operational basis. The FAA provides planning guidance in Advisory Circular 150/5070-7 "The Airport Planning System Process" (2004). This section describes the planning hierarchy in general followed by the planning process used in the RIASP.

Federal law 49 USC 47102(8) defines "integrated airport system planning" as "developing for planning purposes, information, and guidance to decide the extent, kind, location, and timing of airport development needed in a specific area to establish a viable, balanced, and integrated system of public-use airports."

The FAA Advisory Circular (AC) 150-5070-7 *The Airport System Planning Process* states: "The primary purpose of airport system planning is to study the performance and interaction of an entire aviation system to understand the interrelationship of the member airports. The system evaluated in the plan can be the airports of a metropolitan area, a state, or several bordering states. The effort involves examining the interaction of the airports with the aviation user requirements, economy, population, and surface transportation of a specific geographic area. The system of airports may include all airports, heliports, spaceports (operations involving horizontally-launched reusable vehicles), and seaplane bases in the study area that contribute to the national transportation system, as well as those that serve state and local aviation needs."

"The airport system planning process is an examination of system dynamics that leads to the effective use of federal, state, metropolitan, and local aviation resources in developing an efficient network of airports for current and projected needs. The product of the process is a cost-effective plan of action to develop airports consistent with established goals and objectives. The process also results in the establishment of perspectives on aviation priorities, such as airport roles, funding, policy strategies, and system trends in activity level. The process ensures that aviation plans remain responsive to the overall air transportation needs of the state or metropolitan area, while identifying the roles and characteristics of existing and recommended new airports, and describing the overall development required at each, including timeframes and estimated project costs. More detailed design, and capital and environmental planning are accomplished under an individual airport's master plan."

"The airport system planning process should be consistent with state or regional goals for transportation, land use, and the environment. Overall, the planning process includes the elements listed below. It is a dynamic process, which involves feedback from stakeholders throughout the effort. The airport system planning process can include any of the following major elements: (a) Exploration of Aviation Issues in the Study, (b) Area Consideration of Alternative Airport Systems (c) Identification of Air Transportation needs (d) Inventory of Current System, (e) Definition of Airport Roles and Policy Strategies, (f) Forecast of System Demand, (g) Recommendation of System Changes, (h) Funding Strategies and Airport Development, (i) Preparation of an Implementation Plan and (j) Exploration Plan."

The national guidance also states: "*The FAA's National Plan of Integrated Airport Systems (NPIAS)* supports the FAA's strategic goals for safety, system efficiency, and environmental compatibility. The NPIAS identifies specific airport improvements that will contribute to the achievement of those goals. Metropolitan, state, and multi-state aviation system planning fits between the FAA's national planning effort, as documented in the NPIAS, and the more comprehensive master plans prepared for individual airports. It feeds information "up" to be consolidated into the NPIAS and "down" to provide goals and development recommendations for individual airports. The airport system planning process also clarifies Federal, state, and local sponsor objectives, and helps make development of airports part of a regional transportation system."

National Plan of Integrated Airport Systems (NPIAS)

The NPIAS is developed and maintained by the Federal Aviation Administration (FAA) and has been an active component of airport development since 1971 when the Planning Grant Program

was created. The primary inputs for the NPIAS are state level system plans and airport level master plans. An airport must be listed in the NPIAS to be eligible for federal funding. The NPIAS is regularly and continuously updated. The six airports that are the subject of this plan are all contained in the NPIAS as contributors to the national system.

New England Regional Airport System Plan (NERASP)

In the early 1990's Boston Logan was one the nation's major airports contributing significant air traffic delays to the airspace system. A study was conducted to investigate a second major airport for the Boston area. That evaluation funded jointly by the Massachusetts Aeronautics Commission, Massport and FAA of 163 potential locations in Massachusetts made it abundantly clear that such an idea was not feasible. If not a new airport, how would the growing demand for air travel in New England be accommodated? A subsequent analysis, entitled, *A Strategic Assessment Report*, funded by the same parties highlighted that the best course of action was to make more effective use of our existing regional airports.

On the basis of those initial studies and the growing impact of Boston Logan on the entire New England regional airport system a unique coalition was formed. Unique in the sense that such a partnership in system planning was unheard of or untried in the airport industry. That coalition included the FAA New England Region, the six state aviation directors and the directors of the eleven primary airports.

In 1995 the first phase of what was to become known as the New England Regional Airport System Plan (NERASP) was completed. This result of this initial effort was an understanding of the travel profile of the New England air passenger and the impact of Boston Logan International Airport on the region as a whole. In essence, their propensity was to utilize Boston Logan in lieu of the airport closer to their residence, whether it was Providence, Manchester, Worcester, or even some as far as Portland or Burlington. The "leakage rate" ranged from as 25% - 50%. That same study showed that 77% of the people in New Haven preferred to originate their trips at New York airports in lieu of Tweed New Haven Airport.

In 2000 the same coalition began an update of the earlier NERASP. With new and more current data, as well as the impact of the growth that occurred at PVD and MHT in the late 1990's, the focus was to develop forecast models that better predicted the New England traveler. In addition, because of the impacts of September 11, new security requirements, and the dynamic changes in the airline financial situation, it was important to understand these changes on our regional system. Based on the new information and new forecasts developed this study, unlike the initial effort set out to describe, in broad terms, the requirements, deficiencies and future direction of the eleven primary airports. The current New England Regional Airport System Plan[1] was issued in the fall of 2006.

This study discovered some very interesting answers to the central question: "Will this (system) be enough to provide for the needs of the next generation of air passengers?"

- *"The region has an unusually high reliance on air transportation"*[2]
- *"The system does have the ability to meet passenger demand through 2020."*
- *"But to do so requires continued efforts to enhance the performance of each airport in the system."*
- *"This is essential to achieve the level of efficiency and resiliency the system must have for a region so dependent on the services of a constantly evolving airline industry."*

[1] The full report will be incorporated by reference in Element 640 of State Guide Plan. A copy of the report has also been provided to Statewide Planning Program Office.

[2] The region generates 2.5 air passenger trips per year per capita, almost 80% higher than the national rate of 1.4

This plan identifies both Manchester and T.F. Green as having important and substantial roles in the six-state region.

State System Planning
Notwithstanding the NPIAS and NERASP, system planning typically occurs at the state level, although it could certainly be effective at the metropolitan scale as well. The FAA through Federal Aviation Regulation 49 USC 47102 (8) defines "Integrated Airport System Planning" as "developing for planning purposes, information and guidance to decide the extent, kind, location and timing of airport development needed in a specific area to establish a viable, balanced and integrated system of public use airports." The system of airports may include all airports, heliports, and seaplane bases that contribute to the transportation system. A state system may include hundreds of airports, but in Rhode Island there are only six. The previous State Airport System Plan was adopted in 1984. Prior to that, a system planning effort was undertaken in 1974.

An aviation system plan is fundamentally a strategic plan for the purposes of implementing a "top-down" planning approach. It examines the airport system as a whole and how its parts, the individual airports, interact with each other. It is a high-level, macro analysis that provides a means of checks and balances for local airports as they proceed with their individual development plans. The end goal of the system plan is to help ensure that airports are developed appropriately so as maximize their utilization and, as a result, the overall efficiency of the aviation system. A system plan will typically provide some guidance to a master plan, based on its role, as to what types of facilities should or should not be developed at a particular airport so as to maximize the benefit of the facility development, and hence the overall efficiency of the aviation system.

Airport Master Plan
An airport master plan, on the other hand, is a local, "bottom up" planning approach that focuses on a tactical development plan for a specific airport. It examines in greater detail the forecasts and projections, how those translate into specific facility development requirements, and how those development needs would be designed and funded. Environmental studies may follow or run concurrently with a master plan. A master planning process that indicates a desired change in the airport's role, as indicated in the system plan, should lead to a re-examination of the system plan, either through an update or consideration of an amendment thereto. An Airport Layout Plan (ALP) is usually the result of the master plan, and is the document that is ultimately approved and signed by the FAA. It identifies airfield and other improvements deemed necessary through the planning process.

With that end in mind, RIAC has been systematically preparing new airport master plans and Airport Layout Plans for each of the airports in the system. The following describes the status of that process:

Airport	AMP[3]	Current FAA Approved ALP	Status of Planning
Newport State (UUU)	In Progress[4]	June 27, 1966	RIAC received an FAA Grant in July 2006 to develop a new AMP. The planning process started in September 2006. The estimated completion date is February 2008.
T.F. Green (PVD)	In Progress[5]	Jan 25, 2000	The draft AMP is pending completion of the EIS and FAA Record of Decision. Estimated completion date is in late 2008.
Westerly State (WST)	Completed	April 17, 1996	The ALP is over 10-years old and an update of the AMP will be a consideration in developing a new Capital Improvement Plan (CIP).
North Central (SFZ)	Completed	November 9, 2001	The ALP is over 5-years old and an update of the AMP will be a consideration in developing a new CIP.
Block Island State (BID)	Completed	March 22, 2006	The next update will be considered in 2011.
Quonset State (OQU)	Completed	June 22, 2006	The next update will be considered in 2011.

01-04 RIASP Planning Process

In an ideal world, planning would occur sequentially within the hierarchy, i.e., the New England Regional Airport System Plan would be followed by the State Airport System Plan, which would be followed by individual airport master plans. In reality, however, this is rarely possible, and planning processes overlap and do not necessarily occur in the desired sequence. Such is the case with the ASP. Nearly simultaneously, the New England Plan, RIAC's System Plan for the five general aviation airports, and master planning for T.F. Green were ongoing. All were impacted by the September 11 terrorist attacks and restarted after the longer term impacts became more apparent. The ASP draws primarily from two planning efforts which are further described below:

- 2004 General Aviation System Plan
- Ongoing EIS and Master Plan for T.F. Green

Planning Process of the 2004 General Aviation System Plan
The system of five general aviation airports in the State of Rhode Island includes the following airports: North Central, Quonset, Newport, Westerly, and Block Island. The airports were examined in the context of aviation service requirements, economy, population, and surface transportation requirements. The plan was prepared by Edwards and Kelcey through an Airport Improvement Program (AIP) grant from the FAA. The plan contains some information on general aviation activity that occurs at T.F. Green, but not the commercial activity. The report has the following sections:

Identification of planning factors:
Preparation of a complete inventory of current system physical assets;
Preparation of forecasts of system demand;

[3] Copies of the full Airport Master Plan Report and approved Airport Layout Plan are on file at RIAC.
[4] The Statewide Planning Program staff has representation on the Newport AMP Advisory Committee.
[5] The Statewide Planning Program staff has representation on the T.F. Green AMP and EIS Advisory Committee.

Exploration of issues that impact aviation in the study area;
Definition of airport roles;
Performance assessment of each airport as it relates to the system, based on the planning factors;
Recommendations for system changes and airport development; and
Development of goals and policies, also based on planning factors.

The fundamental approach of this study was to capture strategic data that would enable RIAC to make informed decisions related to the planning and development of the airports it manages. A long-term vision for the Rhode Island Airport System was established, as well as the goals that would ultimately direct the airport system toward its established vision.

Because it was anticipated that communities that host these airports would be very sensitive to the progress of this plan, an appropriate public coordination effort was undertaken that included the establishment of Local Advisory Groups (LAG) for each of the five general aviation airports, as well as a series of public information meetings. The LAG's consisted of staff from RIAC, Landmark Aviation (formerly Hawthorne), Statewide Planning, local planners, airport users, pilots associations, airport neighbors, Nature Conservancy, Land Trust, police, local elected officials, chambers of commerce, and the National Guard. LAG's were involved throughout the process and met several times. The input provided by the LAG's on the need for certain improvements, facilities, and services was used in the General Aviation System Plan and is being carried forward in the State Airport System Plan.

RIAC's system plan for the five general aviation airports was essentially completed in 2004, but not submitted for state review because, at that time, it did not include T.F. Green.

Planning Process for T.F. Green
Master Planning for T.F. Green began in 1999. The plan is not yet complete pending the outcome of an Environmental Impact Statement (EIS); following the issuance of a Record of Decision (ROD) the ALP and implementation plan will be finalized. During 2005 and 2006 significant environmental work for extensive airport and airfield improvements, including the extension of the main runway, has been done. As of this writing, the Purpose and Need Statement (including forecasts), the Affected Environment, and identification of alternatives has been completed. Alternatives deemed not feasible, such as relocating the airport, have been eliminated from the analysis. The quantification of impacts of the five alternatives that meet the Purpose and Need is currently underway. Extensive public outreach in both the master plan and EIS have been undertaken, and an agency coordinating committee also meets at pre-determined points in the process to provide input.

Within the context of this state aviation system plan update, T.F. Green must be considered differently than the other general aviation airports. As the primary commercial air service airport in the state and a major contributor to the New England region's airport capacity, T.F. Green plays a significant role beyond the borders of the State of Rhode Island. The master plan effort considers the market area which the airport serves, which includes much of southeastern Massachusetts and southeastern Connecticut. The 1984 Airport System Plan specified that T.F. Green is a medium-haul airport, serving destinations within 1500 miles. As the industry, economy, market, and travel habits have changed over the years, and have been documented in the Master Plan and EIS, this plan recognizes that it is time to reconsider that limitation.

Creating a System Plan
This State Guide Plan element brings together the highlights of RIAC's 2004 General Aviation System Plan which focused on the five general aviation airports and relevant information from the T.F. Green Master Plan and EIS process**,** and frames it in the context of a state guide plan element with goals, objectives, policies, and strategies. Because the 2004 General Aviation System Plan used data only as recent as 2001, some updating was necessary where more recent operations data were available. It has been determined that the more recent data is within the range of the forecasts, and that updating the forecasts was not necessary. Additionally, the performance

measures have been somewhat revised to consolidate two analyses from the 2004 Plan into one and also to better reflect the system needs.

Based on discussions between the Rhode Island Airport Corporation, the Rhode Island Statewide Planning Program, and other airport stakeholders, seven general planning factors were developed for the general aviation system plan, with the understanding that they would be applicable to T.F. Green as well. These goals were utilized to help define and guide the analysis completed for this study. Those planning factors were identified as follows:

Ground Accessibility: Ability of Rhode Island's airports to be accessible from the ground.
Air Accessibility: Ability of Rhode Island's airports to be accessible from the air.
Standards: Ability to meet applicable design and safety standards.
Compliance: Ability to meet environmental regulatory requirements.
Capacity: Ability to provide airside and landside facilities to meet existing and future needs.
Economic: Ability to support Rhode Island's economy and airport financial self-sufficiency.
Compatibility: Ability to operate as compatibly as possible within the community.

The following chapters provide an inventory of the state airports, forecast future operations and passenger levels, measure airport performance in terms of the planning factors, analyze issues related to the seven planning factors, discuss current and future airport roles, and provide goals, objectives, policies, and strategies for the airport system.

640.02 Inventory

There are two key objectives for this inventory of the state-owned airports in the Rhode Island State Airport System Plan. The first is to generate as complete and as comprehensive a database of currently available airport information. A summary is provided in this chapter. The second is to provide a comprehensive overview of the existing state-owned airports and how they function within the existing aviation system.

Because of the relatively small size of Rhode Island's aviation system, a greater amount of information and detail has been incorporated into this chapter. This added detail significantly exceeds that which would ordinarily be incorporated into a typical aviation system plan update. Portions of the database are utilized in subsequent chapters.

This inventory chapter is organized as follows:

02-01 State Aviation System Overview
02-02 Aviation Background and Terminology
02-03 State System Summary
02-04 Airport Inventories
02-05 Other Rhode Island Aviation Facilities
02-06 Other Regional Aviation Facilities

A financial inventory and review was also performed for each airport to provide an overview of how the current system operates on a financial basis, as well as its efficiencies, its inadequacies, and how this system compares to other competing airports within the region.

Data Collection Methods

The first step in the data collection process was to develop and distribute a written survey to all of Rhode Island's state-owned airports, which are the primary focus of this Study. Other aviation facilities, including private use airports, heliports and seaplane bases have been reviewed and summarized in a subsequent section.

The survey included questions on airport specifications and facilities, airport activity and fleet mix data, airport environment and host community relations, as well as general historical and documentation data. All of the surveys for each individual airport were completed by Landmark Aviation Services, formerly Piedmont Hawthorne Aviation, Inc., an aviation services and management company hired by RIAC to act as both manager and primary fixed base operator (FBO) for five of the state owned airports. Data for T.F. Green Airport, the sixth state airport and the only one not covered by Landmark Aviation Services, was collected from T.F. Green's current master plan update, which was conducted concurrently with the ASP.

Site visits were conducted at each of the airports to confirm compiled data and compile a photographic record of the current facilities. Additionally, aerial photographs were taken of all of the state airports, and many of the other aviation facilities not specifically covered by this Study. Interviews were conducted with airport managers, as well as many tenants, operators and airport users. Many other sources of existing data were also reviewed, including:

- FAA Data (ASIS) / Records / Terminal Area Forecasts (TAF) (2002)
- Airport Master Records (5010) (2002)
- Individual Airport Master Plans / Forecasts (2002)
- Rhode Island Airport Corporation Data / Records (2002)
- Rhode Island Department of Statewide Planning Data / Records (2002)
- Rhode Island State Airport System Inventory (October 1969)
- Rhode Island State Airport System Plan (March 1984)

- The 1998 Economic Impact of Rhode Island State Airports Study

02-01 State Aviation System Overview

The six state airports within Rhode Island are currently owned by the Rhode Island Department of Transportation (RIDOT) and are managed by the Rhode Island Airport Corporation (RIAC).

RIAC was formed in December 1992 as a semiautonomous subsidiary of the then Rhode Island Port Authority, now the Rhode Island Economic Development Corporation (RIEDC). The powers of the airport corporation are vested in its seven-member board of directors, six of whom are appointed by the governor, and one who is appointed by the mayor of the City of Warwick.

The purpose of the formation of RIAC as a quasi-public state agency was to have it lease Rhode Island's six state airports from RIDOT for a period of thirty years in an effort to both rehabilitate and develop the aviation system in a more efficient and effective manner. As part of the leasing agreement, RIAC acts as the airports' sole sponsor, responsible for the design, construction, operation, and maintenance of the airports, as well as for the supervision of all civil airports, landing areas, navigation facilities, flight schools, and all other fixed base operators (FBOs).

It is also important to note that while charged with this mandate from the State of Rhode Island, RIAC does not receive any direct funding from the state to help achieve these goals. In other words, the airport corporation does not receive any state tax dollars. RIAC must operate as a self-supporting corporation, receiving no financial support other than that from FAA Airport Development Corp, or other aviation-related resources. RIAC achieves this goal through tenant leases, boarding fees, aircraft tie-down fees, and fuel sales. Revenues at T.F. Green generate income to sustain the operation and maintenance of the system.

The six state airports, their three-letter identifier code, and their current roles as defined by the Federal Aviation Administration (FAA) are as follows (from north to south):

- North Central Airport (SFZ) – General Aviation / Reliever
- T. F. Green Airport (PVD) – Primary Service, medium hub
- Quonset Airport (OQU) – General Aviation / Reliever / military
- Colonel Robert F. Wood Airpark (UUU) – General Aviation (Note that while "Robert F. Wood Airpark" is the official name of the airport, it is also commonly known as "Newport Airport". The two names are used interchangeably.)
- Westerly Airport (WST) – Commercial Service
- Block Island Airport (BID) – Commercial Service

Although there are several privately owned and operated general aviation airports in Rhode Island, they are not included in this airport/system assessment. It is reasonably well known in the aviation industry that privately owned airports are very "fragile" and could disappear depending on the whims of the owner. Basically, they can not be assumed to be available to support the airport system on any extended basis. This system analysis is also independent of any airports located within the nearby borders of Connecticut and Massachusetts. With the elimination of the state aviation excise tax, it is assumed that aircraft owners are less likely to be influenced to move aircraft to these bordering airports.

As noted previously, five of the state airports (all except T.F. Green) are managed on a day-to-day basis by Landmark Aviation Services, a fixed base operator / airport management firm. Landmark Aviation Services is under contract to RIAC to manage, maintain and promote the five general aviation state airports for a flat annual fee plus expenses. However, it is RIAC that serves as the sponsor of all of the public-use airports in the state. The locations of the six state airports in Rhode Island are shown in Figure 640-02(1).

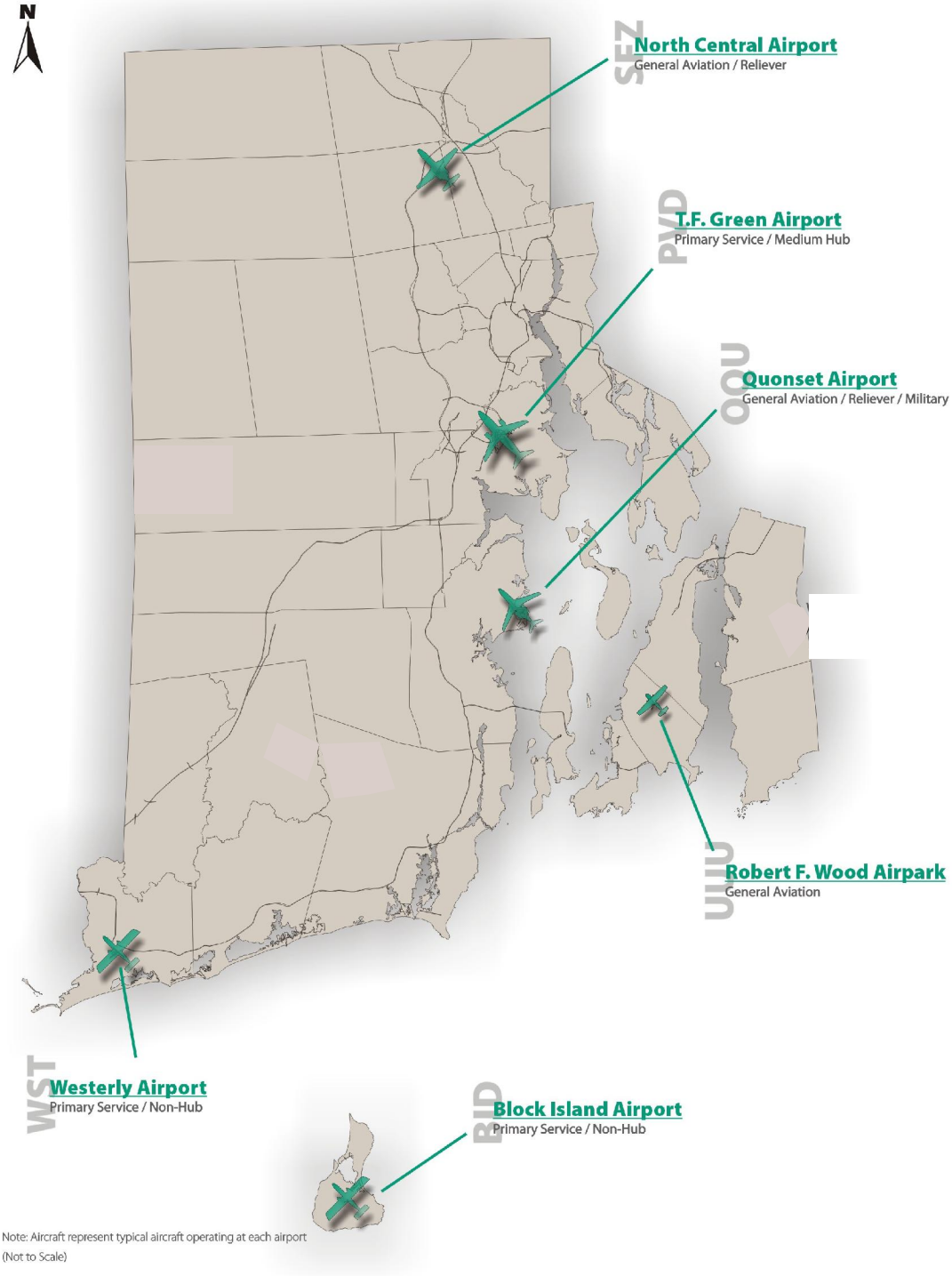


Figure 640-02(1) Rhode Island's State Airports (incl. private airports)

Note: As of 2005, Westerly Airport and Block Island Airport are now Commercial Service Airports due to each airport's annual enplanements being between 2,500 and 10,000.

A number of factors affect how well the existing airport system serves its users, including the:

- location and coverage provided by each airport's service area
- role of each airport in terms of accommodating air carrier and general aviation (GA) activity, and also what type of air carrier and GA activity
- operational capacity and airside facilities of each airport in relation to existing demand
- physical condition of each airport and the level of compliance with current FAA design criteria
- types of services offered at each airport by fixed base operators (FBOs)
- types and level of aviation activity conducted at each airport
- types of navigational aids, communications, and air traffic control services
- adjacent land use and environmental conditions

The specifics of each of these factors are discussed for each individual airport later in this document. Note that definitions and descriptions of the airport characteristics are listed below.

02-02 Aviation Background and Terminology

This background material is provided to orient the reader to basic aviation terminology and concepts.

02-02-01 Existing Airport Conditions

Each individual airport description contains a general overview of the existing conditions at the given airport. Included in this review is a summary of the airport's current operations, as well as general background information.

A. National Plan of Integrated Airport Systems (NPIAS)

The roles for all of the state airports have been established and defined by the National Plan of Integrated Airport Systems (NPIAS). It is a national airport system plan prepared by FAA with a purpose to identify the airports that are important to national air transportation. Being identified within NPIAS makes an airport eligible to receive grants under the Airport Improvement Program (AIP) for the planning and implementation of airport capital improvements for infrastructure development. All of Rhode Island's state airports are listed in the NPIAS. Specifically, NPIAS defines an airport by its role, which reflects the type of service that a given airport provides for its host community. This role also defines the funding categories established by Congress to assist in the distribution of funding resources for airport development. These levels are defined as follows:

Commercial Service (CM) – Public use airports receiving scheduled airline passenger service, enplaning between 2,500 and 10,000 passengers annually.

Primary Service (PR) – Public use, commercial service airports receiving scheduled airline passenger service, enplaning 10,000 or more passengers annually. This service level is also broken down further into Large Hub, Medium Hub, Small Hub, and Non-Hub categories; each based on a percentage of the national commercial service enplanement total.

Reliever (RL) – General Aviation or Commercial Service public use airports, which relieve congestion at a Primary Service airport by providing general aviation and small commercial operators with an alternative point of access to the overall community.

General Aviation (GA) – Either publicly or privately owned public use airports that serve the needs of the general aviation community. General aviation includes a

diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers (including commuter/regional airlines) and military. Its activities include training of new pilots and pilots interested in additional ratings or certification, sightseeing, movement of large heavy loads by helicopter, flying for personal or business/corporate reasons, and emergency medical services. Its aircraft range from the one-seat single-engine piston aircraft to the long-range corporate jet, and also include gliders and amateur-built aircraft.

The role of the airport in the NPIAS establishes the design parameters which, in turn, establishes the aircraft it can accommodate or, in the case of commercial service airports, the routes and markets they serve nonstop.

BU* - Basic Utility
GU* - General Utility
TR* - Transport Type
L - Long Haul (over 1,500 miles)
M - Medium Haul (500 to 1,500 miles)
S - Short Haul (less than 500 miles)
HE - Heliport
SP - Seaplane Base
ST - STOLport

* BU, GU - Utility airports are designed, constructed, and maintained to generally serve airplanes in aircraft approach category A and B. (For discussion see Section B below).
* TR - Transport airport is an airport designed, constructed, and maintained to generally serve airplanes in approach category C and D.

What is important to note about the Long, Medium, and Short Haul classifications as described in the Advisory Circular is that these terms are typically used as further classification of commercial airports within a given state airport system. For example, a state having several commercial airports within its system may elect to designate one as its Long Haul airport and invest in its infrastructure appropriately. The remaining airports might likewise be designated as Medium or Short Haul, so that long-term planning may reflect this designation.

B. Airport Reference Code (ARC)

The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. The airport reference code has two components relating to the airport design aircraft (defined as the most demanding aircraft that conducts 500 or more annual operations at that airport). The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic). The second component, depicted by a Roman numeral, is the airplane design group and relates to airplane wingspan (physical characteristic). Generally, runway standards are related to aircraft approach speed, airplane wingspan, and designated or planned approach visibility minimums.

Aircraft Approach Category – This category is a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

Category A: Speed less than 91 knots.
Category B: Speed 91 knots or more but less than 121 knots.
Category C: Speed 121 knots or more but less than 141 knots.
Category D: Speed 141 knots or more but less than 166 knots.
Category E: Speed 166 knots or more.

Airplane Design Group – This category is a grouping of airplanes based on wingspan. The groups are as follows:

Group I: Up to but not including 49 feet (15 m).
Group II: 49 feet (15 m) up to but not including 79 feet (24 m).
Group III: 79 feet (24 m) up to but not including 118 feet (36 m).
Group IV: 118 feet (36 m) up to but not including 171 feet (52 m).
Group V: 171 feet (52 m) up to but not including 214 feet (65 m).
Group VI: 214 feet (65 m) up to but not including 262 feet (80 m).

C. Airport Dimensional Standards

A primary function of the ARC is in helping to determine the design standards for a particular runway that best fits its current and future usage patterns. These standards have been established by the FAA to optimize the safety and efficiency of aeronautical activities, and are specifically detailed in FAA AC 150/5300-13, ch. 7, Airport Design. Several of the key standards listed in this advisory circular are described below.

Runway Safety Area (RSA) - This area is a defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. Additionally, this area shall be:

- cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;
- drained by grading or storm sewers to prevent water accumulation;
- capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and
- free of objects, except for objects that need to be located in the runway safety area because of their function. Objects higher than 3 inches (7.6 cm) above grade should be constructed on low impact resistant supports (frangible mounted structures) of the lowest practical height with the frangible point no higher than 3 inches (7.6 cm) above grade. Other objects, such as manholes, should be constructed at grade. In no case should their height exceed 3 inches (7.6 cm) above grade.

Note that RSAs are typically non-paved, turfed areas that cannot be utilized by aircraft during normal operations. The dimensional standards (length and width) for an RSA on a given runway is established through a combination of the runway's ARC and on its approach visibility minimum. Recently, FAA approved the use of Engineered Material Arresting Systems (EMAS) which require a reduced RSA length. EMAS is composed of material designed to crush under the weight of an aircraft thus providing predictable, controlled deceleration. This technology is normally used at primary use service airports.

Object Free Area (OFA) - This is an area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. The Runway Object Free Area (ROFA) clearing standard requires clearing the OFA of above ground objects protruding above the runway safety area edge elevation. Except where precluded by other clearing standards, it is acceptable to place objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the OFA. Objects non-essential for air navigation or aircraft ground maneuvering purposes are not to be placed in the OFA. This includes parked airplanes and agricultural operations.

The OFA standards of both width and length are derived from the ARC, as well as the approach visibility minimum associated with that runway. Extension of the OFA beyond the standard length to the maximum extent feasible is encouraged.

Runway Protection Zone (RPZ) – This is an area off the runway end designed to enhance the protection of people and property on the ground. FAA states that this enhancement is achieved preferably through airport owner control of the RPZs, and control is preferably exercised through the acquisition of sufficient property interest in the RPZ. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. While it is desirable to clear all objects from the RPZ, some uses are permitted, provided that they do not attract wildlife, are outside of the Runway OFA, and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances are located outside of the object free area extension. Land uses prohibited from the RPZ are residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.) Additionally, fuel storage facilities should not be located in the RPZ.

The RPZ itself is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the ARC and approach visibility minimum associated with that runway end.

D. Aviation Activity General Terminology

Fleet Mix - Generally describes the type and size of aircraft operating at a given airport. This description is commonly related to the number of engines on an aircraft and on the aircraft weight. Specifically, on the basis of engines, aircraft are categorized as follows (including examples):

- Single-engine (piston & turboprop) - Cessna 172
- Multiengine piston - Beechcraft B58 Baron
- Multiengine turboprop - Beechcraft C90 King Air
- Turbojet - Cessna Citation
- Rotocraft (helicopters) - Bell 206 Jet Ranger
- Other (ultra-lights, gliders, hot-air balloons, etc)

Additionally, aircraft weighting categories are limited to the following:

- Large Airplane - More than 12,500 pounds maximum certified takeoff weight
- Small Airplane - 12,500 pounds or less maximum certified takeoff weight.

Design Aircraft – An airport's design aircraft is defined as the most demanding aircraft that conducts 500 or more annual operations. Factors such as runway and taxiway length, width, pavement strength, and minimum separation distance requirements are determined by the airport's design aircraft and its ARC.

Based Aircraft – Those aircraft normally stored at a given airport when not in use are considered to be "based aircraft." All other aircraft are considered to be "transient" or "itinerant".

Aircraft Operations – An aircraft operation is any take off or landing performed by an aircraft. These operations are classified either as "local", those performed by aircraft which operate within the local traffic pattern or conduct touch-and-go operations, or as "itinerant", those performed by all other aircraft.

Passenger Enplanements– Enplaning passengers are those who board departing aircraft. Histories of enplanements from airports with commercial service are used to project future enplanements, and are useful in determining the existing and future needs for airport facilities.

Airport Role – Airports with no commercial service or those with commercial service enplaning fewer than 2,500 passengers annually are classified as "general aviation" airports. Those enplaning between 2,500 and 9,999 passengers are considered to be "commercial service – other" airports. Airports with more than 10,000 annual enplanements are classified as "primary commercial service" airports.

Airspace – Within regulatory airspace (that which is non-military and not restricted), there are four types of airspace: controlled, uncontrolled, special use, and other. How regulatory airspace is broken down into these four types is a function of the complexity or density of aircraft movements; the nature of the operations conducted within the airspace; the level of safety required; and the national and public interest. For the purposes of this Study, this discussion will be limited to controlled and uncontrolled airspace.

"Controlled" airspace (see Figure 640-02(02)) is a generic term that covers the different classification of airspace (Class A, Class B, Class C, Class D, and Class E airspace) and defined dimensions within which air traffic control service is provided to Instrument Flight Rules (IFR) flights, flights occurring during reduced visibility weather conditions, and to Visual Flight Rules (VFR) flights, flights occurring during improved visibility weather conditions, in accordance with the airspace classification. Among other requirements, controlled airspace requires that a pilot insure that Air Traffic Control (ATC) clearance or radio communication requirements are met prior to entry into controlled airspace. The pilot retains this responsibility when receiving ATC radar advisories.

"Uncontrolled" or Class G airspace is that portion of the airspace that has not been designated as Class A, Class B, Class C, Class D or Class E, and applies to airports that do not have an FAA, or FAA-certified control tower that directly instructs pilots by radio. Regardless as to whether an airport is controlled or uncontrolled, all aircraft (whether under direct radio control or not) operate within specific regulations of the FAA.

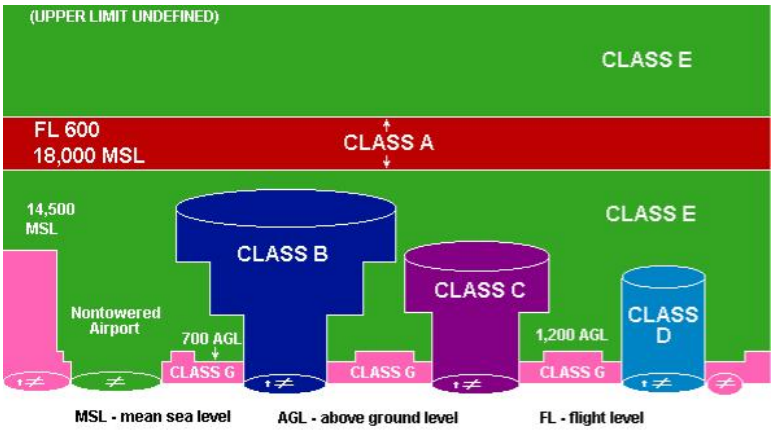


Figure 640-02(02) Airspace Classes

Standard Flight Procedures – Standard flight procedures at airports without an operating control tower are based on a standard flight pattern. Typically flown at 1,000' Above Ground Level (AGL) unless an aircraft is landing or departing, a flight pattern is the standard traffic instrument used to help ensure that operations at airports are conducted similarly throughout the country. It is typically flow with left hand turns (unless otherwise noted), and is comprised of the following six components:

- Upwind leg: A flight path parallel to the landing runway in the direction of landing.
- Crosswind leg: A flight path at right angles to the landing runway off its takeoff end.
- Downwind leg: A flight path parallel to the landing runway in the opposite direction of landing.
- Base leg: A flight path at right angles to the landing runway off its approach end and extending from the downwind leg to the intersection of the extended runway centerline.
- Final approach: A flight path in the direction of landing along the extended runway centerline from the base leg to the runway.
- Departure leg: The flight path that begins after takeoff and continues straight ahead along the extended runway centerline. The departure climb continues until reaching a point at least 1/2 mile beyond the departure end of the runway and within 300 feet of the traffic pattern altitude.

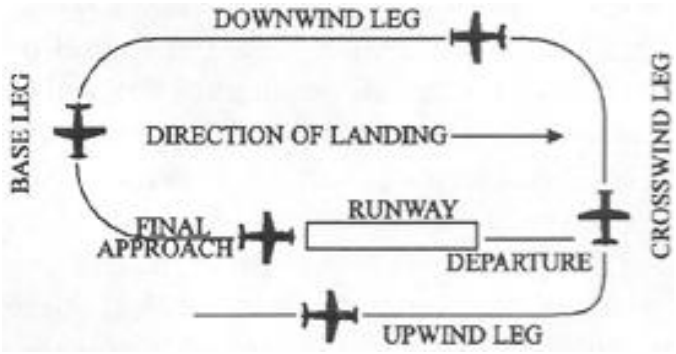


Figure 640-02(03) Standard Flight Pattern

Since a full discussion and lengthy explanation of the numerous rules, regulations and nuances related to standard flight patterns would be unnecessary within the context of this Study, only three points will be noted.

- Aircraft entering a traffic pattern will typically enter the downwind leg at a 45-degree angle, abeam the runway.
- The "size" of a flight pattern around an airport is directly related to the type and speed of the aircraft in the pattern. Smaller aircraft can fly closer in, while larger aircraft will need more room. The downwind leg of a flight pattern can range from ¼ mile to 1 mile or more from the runway, depending on the aircraft.
- Directions/clearances given to a pilot from Air Traffic Control (ATC) override all of these procedures.

Navigational Aids - Various types of air navigation aids are in use today, each serving a special purpose. These aids have varied owners and operators, namely: the FAA, the military services, private organizations, individual states and foreign governments. The FAA has the statutory authority to establish, operate, and maintain air navigation facilities and to prescribe standards for the operation of any of these aids that are used for instrument flight in federally controlled airspace. These aids are tabulated in the Airport/Facility Directory. Several of these navigational aides that relate directly to operations in Rhode Island are defined below.

- Nondirectional Radio Beacon (NDB) - A low or medium frequency radio beacon transmits nondirectional signals whereby the pilot of an aircraft properly equipped can determine bearings and "home" on the station. All radio beacons except the compass locators transmit continuous three-letter identification in code except during voice transmissions.

- Very High Frequency Omni-directional Radio (VOR) - A VOR is a facility frequently providing two individual services: VOR azimuth, and distance measuring equipment (DME) at one site. VOR facilities provide bearing information for a VOR approach and also directional information defining intersections in the airspace used in controlling air traffic. Although consisting of more than one component, incorporating more than one operating frequency, and using more than one antenna system, a VOR is considered to be a unified navigational aid. Both components of a VOR are envisioned as operating simultaneously and providing the three services at all times.

- Instrument Landing System (ILS) – An ILS is designed to provide an approach path for exact alignment and descent of an aircraft on final approach to a runway. It is comprised of both instrument and visual information-generating equipment. The instrument-generating equipment is comprised of the Glide Slope, the Localizer (LOC) and range Marker Beacons/Distance Measuring Equipment (DME). The visual equipment is comprised of approach lighting systems, touchdown zone and centerline lights, and runway edge lights. Note that the LOC can be used as the basis for a nonprecision approach.

- Area Navigation (RNAV) – RNAV provides enhanced navigational capability to the pilot. RNAV equipment can compute the airplane position, actual track and ground speed and then provide meaningful information relative to a route of flight selected by the pilot. Typical equipment will provide the pilot with distance, time, bearing and crosstrack error relative to

the selected "TO" or "active" waypoint and the selected route. Several navigational systems with different navigational performance characteristics are capable of providing area navigational functions. Present day RNAV includes INS, LORAN, VOR/DME, and GPS systems. Modern multi-sensor systems can integrate one or more of the above systems to provide a more accurate and reliable navigational system. Due to the different levels of performance, area navigational capabilities can satisfy different levels of required navigation performance (RNP). Currently, non-precision approaches utilizing GPS have become standardized, while precision approaches are still being planned by FAA and are being tested at several airports around the country.

Instrument Approaches – Instrument approaches are published procedures that allow pilots of suitably equipped aircraft to navigate to an airport and land by Instrument Flight Rules (IFR) during instrument meteorological conditions (IMC). There are two general types of instrument approaches: nonprecision and precision. A nonprecision approach is one in which the pilot has lateral course guidance to the airport or specific runway end. This type of approach can be based on a variety of navigational and visual instruments, and produces a wide range of approach minimums. A precision approach is one in which the pilot has both lateral and vertical guidance to the runway end, and produces a range of the lowest approach minimums available. At minimum, this type of approach utilizes a localizer, a glideslope, marker beacons or distance measuring equipment (DME), and an appropriate approach lighting system. Both types of approaches require the pilot to remain in radio contact with some form of Air Traffic Control (ATC).

E. Areas of Airport Influence: Part 77 Surfaces

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, defines invisible or “imaginary” surfaces at and around every airport in the United States. The purpose of these imaginary surfaces at an airport is to protect all of the airspace that an aircraft may require to transition safely in either visual or instrument conditions from ground to air, and air to ground. This is accomplished by preventing any object, from trees to buildings and towers, from growing or being constructed higher than any one of these imaginary surfaces. These imaginary surfaces are therefore protecting the navigable airspace at and around an airport and, by extension, the aircraft that operate there. It is important to note two facts about Part 77. First, there are five different types of imaginary surfaces at every airport, and these are defined by very specific slopes and distances, which vary with the type of aircraft and operations that are conducted at a given airport. Second, the FAA cannot specifically prohibit development that violates Part 77 surfaces if the development occurs on land that is not on grant-assured airport property. Violations to the Part 77 surfaces can have dramatic impacts to airport operations, which can include the shortening of runways. However, local zoning ordinances can mandate that new development adhere to Part 77 requirements, since local municipalities have the legal power to regulate the location, type and dimensions of proposed development.

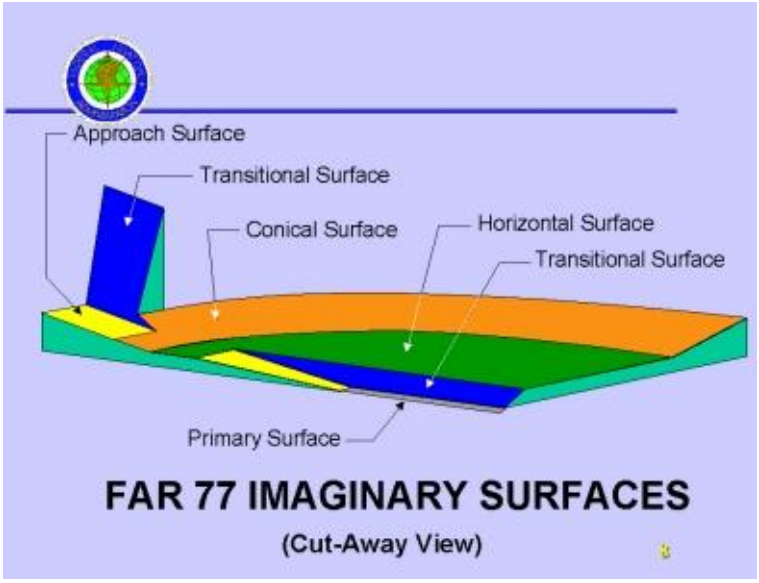


Figure 640-02(04) FAR Part 77 Surfaces

The Part 77 surfaces are defined for each Rhode Island state airport as illustrated in GIS mapping located under each airport description.

02-03 State System Summary

Below are tables and information of general airport characteristics summarizing the state's airport facilities for comparison purposes. Individual airport inventories appear in the next section.

Figure 640-02(05) General Airport Data

	Three-Letter Identifier	Location	Associated City	Sponsor	Manager	2005-2009 NPIAS Role	Elevation MSL (ft)
North Central	SFZ	Smithfield/ Lincoln	Pawtucket	RIAC	Landmark Aviation Services	GA / RL	441
T. F. Green	PVD	Warwick	Providence	RIAC	RIAC	PR	55
Robert F. Wood (Newport)	UUU	Middletown	Newport	RIAC	Landmark Aviation Services	GA	172
Quonset	OQU	North Kingstown	North Kingstown	RIAC	Landmark Aviation Services	GA / RL	19
Westerly	WST	Westerly	Westerly	RIAC	Landmark Aviation Services	CM	81
Block Island	BID	New Shoreham	Block Island	RIAC	Landmark Aviation Services	CM	109

Figure 640-02(06) Current Airside Facilities Data

	Runways	ARC	Length (ft)	Width (ft)	Surface (Condition)	Parallel Taxiway	Taxiway Width (ft)
North Central	5 23	B-II	5,000	150	Asphalt (Fair)	Full	50
	15 33	B-I	3,210	75	Asphalt (Excellent)	Partial	25
T. F. Green	5 23	D-IV	7,166	150	Asphalt (NA)	Partial	75
	16 34	D-IV	6,081	150	Asphalt (NA)	Partial	75
Robert F. Wood (Newport)	4 22	B-II	2,999	75	Asphalt (Good)	Full	40
	16 34	B-II	2,623	75	Asphalt (Good)	None	-
Quonset	5 23	B-II	4,003	75	Asphalt (Good)	Full	50
	16 34	D-IV	7,500	150	Asphalt (Excellent)	Full	75
Westerly	7 25	B-II	4,010	100	Asphalt (Poor)	Full	35-50
	14 32	B-II	3,980	75	Asphalt (Excellent)	Full	35
Block Island	10 28	A-II	2,501	100	Asphalt (Fair)	Partial	35 - 40

Figure 640-02(07) FAA Design Criteria Data

	Runway End	RSA (W x L)	ROFA (W x L)	RPZ (W1 x W2 x L)	Part 77 Classification
North Central	5 23	150' x 300'	500' x 300'	1,000' x 1,510' x 1,700'	Nonprecision =3/4 mile
	15 33	120' x 240'	400' x 240'	500' x 700' x 1,000'	Visual
T. F. Green	5 23	500' x 1,000'	800' x 1,000'	1,000' x 1,750' x 2,500'	Precision <3/4 mile
	16 34	500' x 1,000'	800' x 1,000'	500' x 1,010' x 1,700' 1,000' x 1,750' x 2,500'	Nonprecision >3/4 mile Precision <3/4 mile
Robert F. Wood (Newport)	4 22	150' x 300'	500' x 300'	500' x 700' x 1,000'	Visual Nonprecision >3/4 mile
	16 34	150' x 300'	500' x 300'	500' x 700' x 1,000'	Nonprecision >3/4 mile Visual
Quonset	5 23	150' x 300'	500' x 300'	500' x 700' x 1,000'	Visual
	16 34	500' x 1,000'	800' x 1,000'	1,000' x 1,750' x 2,500' 1,000' x 1,510' x 1,700'	Precision <3/4 mile
Westerly	7 25	150' x 300'	500' x 300'	500' x 700' x 1,000'	Nonprecision >3/4 mile Visual
	14 32	150' x 300'	500' x 300'	500' x 700' x 1,000'	Visual
Block Island	10 28	150' x 300'	500' x 300'	500' x 700' x 1,000'	Utility >3/4 mile vis

02-04 Airport Inventories

The purpose of the Airport Summaries section of the Inventory chapter is to take a more detailed look at the individual airports of the Rhode Island Aviation System than would typically be provided in a standard system plan update. Again, because of the relatively small size of Rhode Island's aviation system, a far greater amount of information and detail was generated for each of the individual airports and their surrounding areas. In an effort to best utilize this data, individual airport summaries have been constructed to encapsulate the most important elements related to each. Summaries for the six airports appear below.

02-04-01 T.F. Green Airport (PVD) Inventory

Figure 640-02(08) T. F. Green Airport (PVD)

Airport Highlights	
Three Letter Identifier	PVD
Location/Host Community	Warwick
Associated City	Providence
NPIAS Role	Primary Service – Medium Hub
Runways	5-23 150' wide by 7,166' long 16-34 150' wide by 6,081' long
Taxiways	Partial Parallels (All)
Lowest Approach Minimums	0 mi VIS, 0' MDH for CAT IIIC ILS 5R
FBOs & Tenants	NA
Based Aircraft (2000)	72
Operations (2004)	(general aviation and commercial activity) 121,428
Enplanements (2004)	2,752,714
Economic Impact (1998)	$1.03 billion

RIAC Operating Expenses	NA
Airport Zoning	Not in place, required by Title I Aeronautics, RI General Laws
RPZ Land Use	NA
Most Recent Approved ALP	January 25, 2000

Figure 640-02(09) PVD Overhead Aerial

As the largest, busiest and only airport in the Rhode Island Aviation System providing scheduled service by major commercial airlines, T.F. Green Airport (PVD) plays a tremendously important and influential role within the state aviation system. In addition to this role within the state, PVD also plays an important role within the overall regional and national system of airports as well. As such, PVD deserves special consideration within the context of this system plan update in that it must be able to fulfill roles on a variety of levels, only one of which is on the state level. This study recognizes that PVD has a role in both the state and regional aviation systems.

Since 1996 when both the new terminal opened and Southwest commenced service, PVD has seen tremendous passenger growth. PVD is currently served by 8 national airlines, 3 commuter airlines, and one international airline. Today the airlines provide nonstop service to 29 destinations with an average of 132 daily departures. The major nonstop destinations are in the northeast, southeast and the midwest. In addition Southwest Airlines flies to Phoenix and Las Vegas, the furthest nonstop destinations.

Determining the details of how a major airport such as T.F. Green should ultimately develop is the function of an FAA-sponsored master planning effort, consistent with a state aviation system plan. As such, PVD is currently in the midst of an effort to update its 20-year Master Plan that is designed to chart the future course of the airport. Since it is not the intention of the Rhode Island State Airport System Plan to duplicate work completed within the context of the Master Plan effort, only relevant data compiled by the Master Plan and EIS (Environmental Impact Statement) will be incorporated into this document. A full inventory of PVD has been compiled as part of the master plan. However, the purpose and need for the PVD Improvement Program, including a proposed runway extension, among other airfield and terminal improvements, indicates that an extension is needed to effectively serve its market and provide nonstop west coast service. As the airport is surrounded by roadways, residential development, and

wetlands, extension of the runway will be difficult and will have some degree of environmental and community impacts. The ongoing EIS is in the midst of quantifying these impacts.

02-04-02 North Central Airport (SFZ) Inventory

Figure 640-02(10) North Central Airport (SFZ)

Airport Highlights	
Three Letter Identifier	SFZ
Location/Host Community	Smithfield/Lincoln
Associated City	Pawtucket
NPIAS Role	General Aviation / Reliever
Runways	100’ wide by 5,000’ long 15-33 75’ wide by 3,210’ long
Taxiways	Full Parallel (5-23) Partial Parallel (15-33)
Lowest Approach Minimums	¾ mi VIS, 391’ MDH for LOC 5
FBOs & Tenants	5
Based Aircraft (2001)	115
Operations (2005)	29,510
Enplanements (2005)	NA
Economic Impact (1998)	$5.2 million
RIAC Operating Expenses (FY2001)	$415,931
Airport Zoning	Not in place, required by Title I Aeronautics, RI General Laws
RPZ Land Use	79% Undeveloped / 13% Developed / 8% Airport
Most Recent Approved ALP	November 9, 2001

Figure 640-02(11) SFZ Overhead Aerial

North Central Airport (SFZ) is located in the northeastern RI towns of Lincoln and Smithfield, and serves the greater Blackstone River Valley region of northern RI and central Massachusetts. Defined within FAA's National Plan of Integrated Airport Systems (NPIAS) as a General Aviation / Reliever airport, SFZ exclusively accommodates general aviation traffic, from single-engine piston aircraft used for recreational and flight training to corporate and business aviation aircraft. SFZ does not accommodate scheduled passenger or cargo service. As a reliever airport, SFZ serves as an alternative airport for general aviation traffic, specifically corporate jets and business aircraft that would otherwise use T.F. Green Airport (PVD).

Built in 1951 and having a 5,000-foot primary runway and a 3,210-foot crosswind runway, SFZ is able to accommodate full operations by most small and mid-sized corporate jets, although larger aircraft (such as the Gulfstream G-IV) occasionally do operate there at reduced weights, due to the runway length constraints. Some operators of corporate aircraft indicate that they do not fly into SFZ because of the relatively high minimums on the instrument approach procedure, as well as limited runway length. For example, neither Textron nor CVS operate their Cessna Citation X corporate jet at SFZ, even though the aircraft could operate at the airport at reduced weights.

However, runway length and approaches aside, SFZ is in close proximity to numerous businesses, industrial parks, and economic centers. Closer in fact to downtown Providence than T.F. Green Airport, SFZ effectively serves corporate and recreational users within the general Providence metropolitan area, while relieving general aviation activity from PVD. SFZ is also home to a very active skydiving business that operates from the spring through the fall.

As an economic generator, SFZ produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the

magnitude of this economic activity, North Central Airport's total quantifiable airport economic impacts in 1998 were $5,201,700, according to the Rhode Island Airport Economic Impact Study completed in 1999.

02-04-03 Quonset Airport (OQU) Inventory

Figure 640-02(12) Quonset Airport (OQU)

Airport Highlights	
Three Letter Identifier	OQU
Location/host Community	North Kingstown
Associated City	North Kingstown
NPIAS Role	General Aviation - Reliever
Runways	5-23 75' wide by 4,003' long 16-34 150' wide by 7,500' long
Taxiways	Full Parallel (16-34) Partial Parallel (5-23)
Lowest Approach Minimums	½ mi VIS, 200' MDH for ILS 16
FBOs & Tenants	3
Based Aircraft (2001)	39
Operations (2005)	18,846
Enplanements (2005)	NA
Economic Impact (1998)	$83.1 million
RIAC Operating Expenses (FY2001)	$277,910
Airport Zoning	Not in place, required by Title I Aeronautics, RI General Laws
RPZ Land Use	52% Undeveloped / 24% Developed / 24% Airport
Most Recent Approved ALP	June 22, 2006

Figure 640-02(13) OQU Overhead Aerial

Quonset Airport (OQU) is located in North Kingstown, RI, on a man-made spit of land on the western shore of Narragansett Bay that has seen a 33-year period of National Guard use, preceded by 47 years of active Navy use. The airport is located approximately 16 miles south of downtown Providence, and is less than 9 miles south of T.F. Green Airport (PVD). It currently services the residents of eastern Washington County, eastern Kent County, Jamestown, and the industrial park at Quonset.

OQU is unique among Rhode Island's airports in that it is a public use facility that is in close proximity to port, rail, and highway access, and an extensive industrial park. It is also the operations, training and maintenance base of the RI Air National Guard (RIANG) (operating C-130 transports) and the RI Army National Guard (the 1/126th Aviation Regiment currently operating UH-60 Blackhawk helicopters). Additionally, a large portion of OQU is developed for industrial use (the Quonset – Davisville Port and Commerce Park), which also serves as a port facility as well. Electric Boat has a large submarine manufacturing facility. Although there are large manufacturing facilities in close proximity to the airport, there is relatively little air cargo at the airport. Most of the cargo (both raw materials and manufactured goods) is trucked, and shipped by rail and barge.

OQU has been defined within FAA's National Plan of Integrated Airport Systems (NPIAS) as a General Aviation / Reliever airport, and has the longest runway in the state (7,500 feet). As a reliever airport, OQU serves as an alternative airport for general aviation traffic that would otherwise use T.F. Green Airport (PVD). It is also only one of two airports in the state having a precision instrument approach and a control tower, with the other being PVD. Both the control tower and precision approach at OQU were installed and are operated by the RIANG to support their base mission. However, both of these facilities are available and are used by civilian operators as well. Although it has a long runway and precision instrument approach, Quonset does not accommodate the same volume of corporate traffic as PVD, may be in part due to its distance from Providence, Warwick, Cranston, Smithfield, etc., as well as its distance from I-95. Additionally, its primary 7,500 foot Runway 16-34 is configured in more of a crosswind orientation to the area's prevailing southwesterly winds, and is preferred for use typically

in adverse weather conditions, when winds usually blow from the southeast. Its shorter Runway 5-23 is in fact oriented the same as PVD's primary runway, which coincides with the prevailing winds. Nevertheless, Quonset Airport is widely viewed as having significant underutilized potential. The EIS for PVD includes an option which shifts some cargo operations to Quonset.

As an economic generator, OQU produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate, and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Quonset Airport's total quantifiable airport economic impacts in 1998 were $83,132,900, according to the Rhode Island Airport Economic Impact Study completed in 1999.

02-04-04 Robert F. Wood Airpark (Newport Airport) (UUU) Inventory

Figure 640-02(14) Robert F. Wood Airport (UUU)

Airport Highlights	
Three Letter Identifier	UUU
Location/Host Community	Middletown
Associated City	Newport
NPIAS Role	General Aviation
Runways	4-22 75' wide by 2,999' long 16-34 75' wide by 2,623' long
Taxiways	Full Parallel (4-22)
Lowest Approach Minimums	1 mi VIS, 468' MDH for LOC 22
FBOs & Tenants	6
Based Aircraft (2001)	26

Operations (2005)	18,823
Enplanements (2005)	NA
Economic Impact (1998)	$4.6 million
RIAC Operating Expenses (FY2001)	$132,818
Airport Zoning	Not in place, required by Title I Aeronautics , RI General Laws
RPZ Land Use	76% Undeveloped / 11% Developed / 13% Airport
Most Recent Approved ALP	June 27, 1966

Figure 640-02(15) UUU Overhead Aerial

Located in Middletown, the recently renamed Robert F. Wood Airpark (UUU) (formerly Newport State Airport) is approximately 0.5 miles south of the Town of Portsmouth and 1.5 miles north of the City of Newport. (Note that while "Robert F. Wood Airpark" is the official name of the airport, it is also still known as "Newport Airport" and the two names are used interchangeably.) The airport provides general aviation air access to the Aquidneck Island towns of Portsmouth, Middletown and Newport, as well as the neighboring towns of Little Compton, Tiverton, Bristol, Warren, and Barrington. It has been defined within FAA's National Plan of Integrated Airport Systems (NPIAS) as a General Aviation airport. Having a 2,999 foot primary runway and a 2,623 foot crosswind runway, UUU's runway lengths limit the type of aircraft that can use the airport primarily to single and multi-engine pistons, although turboprops, such as Beech King Airs, and small corporate jets, such as Cessna Citations, occasionally use the Airpark.

Robert F. Wood Airpark is regularly used by tourists, by local aviation enthusiasts, and by the Rhode Island Army National Guard. It serves the Island's corporate community, as well as the many visitors to Newport's year-round festivals and attractions. The airport also provides quick access not only for boat owners who harbor vessels in the nearby marinas, but also for the extensive ship building industry in the East Bay area.

Additionally, the airport currently meets some of the needs of the local business community who find it advantageous to either charter a flight or utilize corporate aircraft

rather than use commercial service at T.F. Green Airport, located 20 miles away in Warwick. This benefit becomes even more pronounced during the peak summer months when traffic congestion through Bristol and on the Newport and Jamestown Bridges, can significantly increase driving times to T.F. Green.

With its relative isolation from other Rhode Island communities, a distinctive quality of life has emerged on Aquidneck Island. Dominated by Newport tourism and U.S. Navy operations on the south and west sides, the Island's agricultural heritage, history, and extensive coastal resources have contributed significantly to its identity. Although the City of Newport is densely developed, one-third of Middletown and Portsmouth remains agricultural. These island communities share many similar concerns including traffic, preservation of natural resources, preservation of open space and recreational areas, sewer and water capacity, and increased development pressure.

Middletown is renowned for its open spaces including agricultural fields, pastures, open vistas across golf courses and the airport. Areas adjacent to these less intensive land uses are now being increasingly developed for residential, commercial, and industrial use. This increasing density requires careful coordination between RIAC and local planners in order to maximize the safety of its operations.

As an economic generator, UUU produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate, and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Robert F. Wood Airpark's total quantifiable airport economic impacts in 1998 were $4,568,200, according to the Rhode Island Airport Economic Impact Study completed in 1999.

02-04-05 Westerly Airport (WST) Inventory

Figure 640-02(16) Westerly Airport (WST)

Airport Highlights	
Three Letter Identifier	WST
Location/Host Community	Westerly
Associated City	Westerly
NPIAS Role	Commercial Service*
Runways	7-25 100' wide by 4,010' long 14-32 75' wide by 3,980' long
Taxiways	Full Parallels to both runways
Lowest Approach Minimums	1 mi VIS, 444' MDH for LOC 7
FBOs & Tenants	4
Based Aircraft (2001)	84
Operations (2005)	21,307
Enplanements (2005)	7,640
Economic Impact (1998)	$7.7 million
RIAC Operating Expenses (FY2001)	$176,515
Airport Zoning	Not in place, required by Title I Aeronautics, RI General Laws
RPZ Land Use	95% Undeveloped / 3% Developed / 2% Airport
Most Recent Approved ALP	April 17, 1996

*NPIAS Commercial Service Role is based on annual enplanements between 2,500 and 10,000

Figure 640-02(17) WST Overhead Aerial

As an integral element of the region's transportation infrastructure, Westerly Airport's (WST) fundamental purpose is to help meet the aeronautical demands of not only the Washington County area (including Westerly, Charlestown, Hopkinton, Richmond, Exeter, and parts of South Kingstown), but also southeastern Connecticut. Meeting this demand means providing facilities and services for corporate users and general aviation

aircraft; offering extensive aircraft maintenance capabilities; and providing regularly scheduled air passenger service to Block Island Airport (BID).

Specifically, WST has been defined within FAA's 2001 National Plan of Integrated Airport Systems (NPIAS) as a Commercial Service airport. It has a 4,010-foot primary runway (RW 7-25) and a 3,980-foot crosswind runway (RW 14-32), along with full parallel taxiways. With its two non-precision approaches, WST regularly accommodates mid-sized corporate aircraft (both turboprops and jets), although piston-engine airplanes are the predominant operating type.

Additionally, WST serves as a critical link in the transportation of both passengers and cargo to Block Island. New England Airlines is an FAR Part 135 commuter carrier based at WST and providing the only scheduled air service to BID, currently utilizing both single and multi-engine piston aircraft (i.e. Piper Cherokee Six and B-N Islander). Like Rhode Island airports in Block Island and Newport, as well as Massachusetts airports in Barnstable, Nantucket, and Martha's Vineyard, operations at WST are extremely seasonal, with the majority of operations occurring during the peak tourism season between Memorial Day and Labor Day. During this peak activity summer season, New England Airlines has at least one scheduled departure to and arrival from BID every hour. In addition to these scheduled flights, New England Airlines frequently adds more flights in order to accommodate increased ticket counter demand during peak periods. This method of adding flights can significantly increase the number of the airline's scheduled operations, and provides the necessary flexibility to meet this type of fluctuating demand. During the off-season, New England Airlines' scheduled service is reduced to at least one scheduled departure to and arrival from BID every other hour.

As a general aviation facility, activity at WST tends to mirror the seasonality seen in its commercial service operations, with peak operations occurring between Memorial Day and Labor Day. During weekends in the peak summer months of July and August, transient parking is frequently filled with small GA and larger corporate aircraft. In fact, Dooney Aviation, a "through-the-fence" fixed base operator (FBO) at WST specializing in servicing corporate GA, reportedly sees significant traffic volumes during the peak season, and is consistently active throughout the remainder of the year. It is also reported that significant weekend traffic throughout the year was previously generated by the presence of a restaurant in the old terminal building. While that terminal building, which was lost in a 1999 fire, was recently replaced by a new building in 2001, there is still no restaurant on the airport.

As an economic generator, WST produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate, and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Westerly Airport's total quantifiable airport economic impacts in 1998 were $7,696,300, according to the Rhode Island Airport Economic Impact Study completed in 1999.

02-04-06 Block Island Airport (BID) Inventory

Figure 640-02(18) Block Island Airport (BID)

Airport Highlights	
Three Letter Identifier	BID
Location/Host Community	New Shoreham
Associated City	Block Island
NPIAS Role	Commercial Service*
Runways	10-28 100' wide by 2,501' long
Taxiways	Partial Parallel
Lowest Approach Minimums	¾ mi VIS, 431' MDH for GPS 10 & VOR DME 10
FBOs & Tenants	4
Based Aircraft (2001)	7
Operations (2005)	18,631
Enplanements (2005)	7,747
Economic Impact (1998)	$11.8 million
RIAC Operating Expenses (FY2001)	$170,435
Airport Zoning	None related to Title I Aeronautics of the RI General Laws
RPZ Land Use	76% Undeveloped / 11% Developed / 13% Airport
Most Recent Approved ALP	March 22, 2006

*NPIAS Commercial Service Role is based on annual enplanements between 2,500 and 10,000

Figure 640-02(19) BID Overhead Aerial

Block Island Airport (BID) is located at the center of Block Island, officially known as the Town of New Shoreham, a 10 square mile island located at the mouth of Long Island Sound, 14 miles from the mainland. The airport provides essential commercial, emergency, and general aviation air access to Block Island, and has been defined within FAA's 2001 National Plan of Integrated Airport Systems (NPIAS) as a Commercial Service airport. BID has a single 2,501-foot runway that provides direct access to and from the island for residents and tourists via New England Airlines, a small commercial passenger FAR Part 135 commuter carrier currently operating between the Westerly Airport (WST) and BID.

Like airports at Westerly and Newport in Rhode Island, as well as Barnstable, Nantucket, and Martha's Vineyard in Massachusetts, operations at BID are extremely seasonal, with the majority of operations occurring during the peak tourism season between Memorial Day and Labor Day. During the peak summer season, New England Airlines has at least one scheduled departure and arrival between BID and WST every hour. The number of these scheduled operations can be increased significantly by New England Airlines through adding flights to meet added passenger demand at the ticket counter. During the off-season, this scheduled service is reduced to at least one scheduled departure to and arrival from WST every other hour.

Note that this scheduled commercial service plays a vital role for Block Island in that it is the fastest means of access (15-20 minutes via air vs. 60+ minutes via ferry) and acts as the only means of access to the Island when the ferry service cannot operate, such as during high seas conditions. This commercial service also fills a variety of additional roles for island residents including carrying large volumes of freight year round, such as the shipping of time sensitive items like newspapers, critical repairs, parts, and machinery maintenance equipment.

The speed of available transportation takes on added importance when related to life care and emergency medical services. Because of the speed of air transportation, the immediacy of its access, and its ability to operate in inclement weather conditions to the

degree that its current approaches permit, BID serves as the island's lifeline to the mainland for the emergency evacuation of life-threatened patients. Emergency evacuations that cannot utilize BID due to weather are limited by the schedule of the ferry service, or in emergency cases, the U.S. Coast Guard.

As a general aviation facility, activity at BID tends to mirror the seasonality seen in its commercial service operations, with peak operations occurring between Memorial Day and Labor Day. During weekends in the peak summer months of July and August, transient parking (both paved and turf) is frequently filled. While some GA traffic at BID is generated by the island's only year round restaurant (Bethany's Airport Diner), the vast majority of operations occur during the summer months.

As an economic generator, BID produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate, and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Block Island Airport's total quantifiable airport economic impacts in 1998 were $11,805,400, according to the *Rhode Island Airport Economic Impact Study* completed in 1999.

02-05 Other Rhode Island Aviation Facilities

A summary of the other aviation facilities in Rhode Island that are not owned by the state but are listed by FAA is provided in the following tables. The data provided below has been taken from each of the facility's last filed FAA Form 5010-1, Airport Master Record. Inventories and site inspections of these facilities have not been conducted as part of this Study, although photographs of selected facilities also follow. Note that these facilities are important in that they do relieve some congestion at the state airports, or fulfill an otherwise unmet need, as is the case with the Tiverton Seaplane Base.

Heliports in Rhode Island serve a variety of functions, including emergency operations, and the State owns one such facility: the Downtown Providence Helistop.

Figure 640-02(20) Other Listed Rhode Island Airports

Name & ID	Type	Location	Runways	Length	Width	Surface	Based Aircraft	Misc
Richmond Air Park (08R)	Public Airport	West Kingston, RI	11-29	2,130'	30'	Asphalt	31	Hangars, Tiedowns, 100LL
Wing-Over Airport (RI07)	Private Airport	Tiverton, RI	N-S	1,200'	100'	Turf	NA	Hangar
RICONN Airport (RI11)	Private Airport	Greene, RI	9-27 14-32	1,600' 1,576'	150' 100'	Turf	9	Hangar
Mystery Farm Airport (RI20)	Private Airport	Cranston, RI	17-35	700'	150'	Turf	-	CLOSED

Figure 604-02(21) Other Listed Rhode Island Aviation Facilities

Name & ID	Type	Location	Runways	Length	Width	Surface	Based Aircraft	Misc
Tiverton Seaplane Base (RI06)	Private Seaplane Base	Tiverton, RI	3-21	4,500’	1,200’	Water	2	Seaplanes
Keskinen Balloonport (RI16)	Private Balloonport	Coventry Center, RI	B1	600’	300’	Turf	NA	-

Figure 640-02(22) Other Listed Rhode Island Aviation Heliports

Name & ID	Type	Location	Runways	Length	Width	Surface	Based Aircraft	Misc
Kent County Mem. Hospital (RI01)	Private Heliport	Warwick, RI	NA	50’	50’	Asphalt	NA	Medical
South County Hospital (RI08)	Private Heliport	Wakefield, RI	NA	50’	50’	Asphalt	NA	Medical
Westerly Hospital (RI23)	Private Heliport	Westerly, RI	NA	50’	50’	Concrete	NA	Medical
RI Hospital (RI25)	Private Heliport	Providence, RI	NA	100’	100’	Concrete	NA	Medical
Landmark Medical Center (RI26)	Private Heliport	Woonsocket, RI	NA	35’	35’	Asphalt	NA	Medical
Downtown Providence Helistop (RI9)	Public Heliport	Providence, RI	NA	25’	25’	Concrete	NA	On riverbank, Obstructions to N, S, & E.
Port Edgewood Marine (RI05)	Private Heliport	Cranston, RI	NA	300’	100’	Asphalt	NA	-
Foxridge Farm (RI13)	Private Heliport	West Kingston, RI	NA	50’	50’	Turf	1	-
H. Chambers Cadillac (RI14)	Private Heliport	Providence, RI	NA	75’	50’	Asphalt	NA	Car Dealership
One Hospital Trust (RI15)	Private Heliport	Providence, RI	NA	62’	56’	Concrete	1	Bank Rooftop Elev. 406’ MSL
Goat Island (RI21)	Private Heliport	Newport, RI	NA	50’	50’	Concrete	NA	-
Capital Center (RI22)	Private Heliport	Providence, RI	NA	NA	NA	NA	NA	-
Quonset ANG (RI12)	Private Heliport	North Kingstown, RI	NA	120’	120’	Asphalt	35	Quonset Airport
East Arnolda Farm (RI30)	Private Heliport	Charlestown, RI	NA	100’	200’	Turf	NA	-

*Note: the current status of Portsmouth Ramada (now Roger Williams University) and Doris Duke private heliports could not be verified at this time.

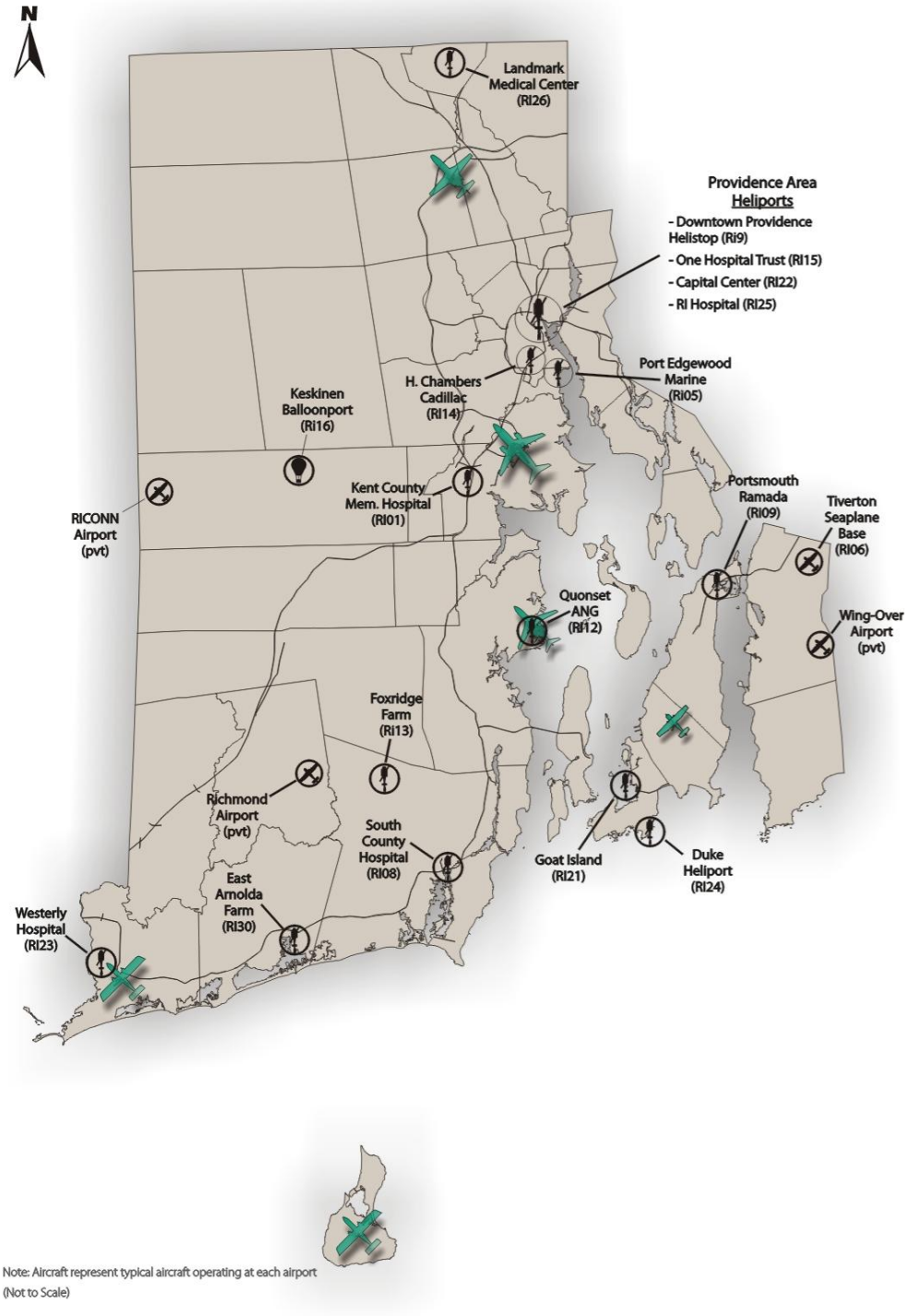


Figure 640-02(23) Rhode Island's Other Aviation Facilities (non-state)

02-06 Other Regional Aviation Facilities

In addition to those airports located in Rhode Island, there are also a number of airports located in Connecticut and Massachusetts whose service areas extend into Rhode Island, and that compete for aviation activity and revenue generated at RIAC's airports. The locations of most of these airports are shown below in Figure 640-02(19). Data for these airports has been taken from each of the facility's last filed FAA Form 5010-1, Airport Master Record, and compiled in the following tables for ease of reference and comparison. Inventories and site inspections of these facilities have not been conducted as part of this plan.

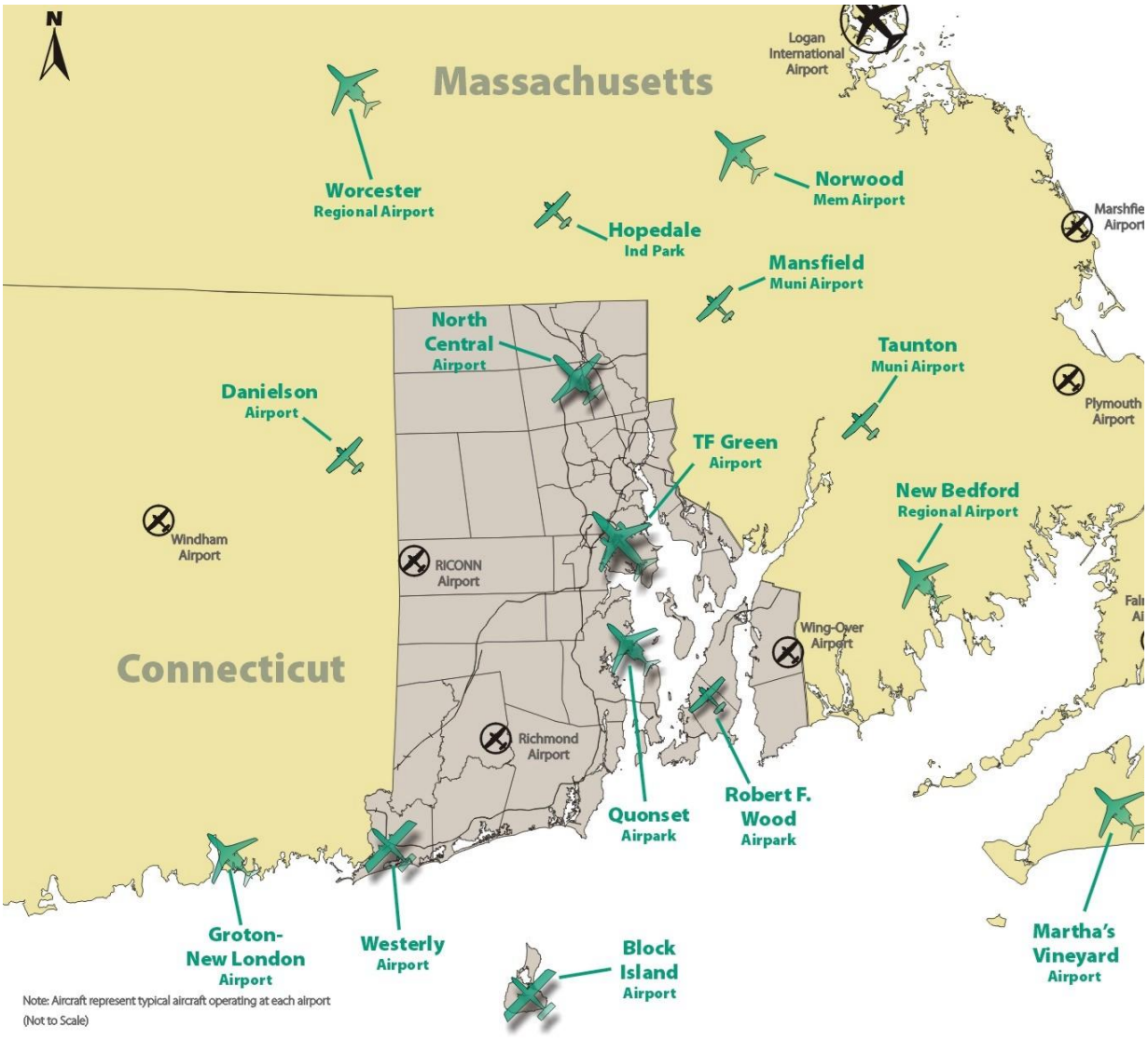


Figure 640-02(24) Other airports in the Rhode Island region

Figure 640-02(25) General Airport Data

	Three-Letter Identifier	Location	Associated City	Sponsor	Manager	NPIAS Role	Elevation MSL (ft)
Hopedale Industrial Park	1B6	Hopedale, MA	Hopedale, MA	Hopedale Airport Industrial Park	Hopedale Air Service	-	269
Mansfield Municipal	1B9	Mansfield, MA	Mansfield, MA	1B9 Commission	King Aviation	GA	122
Marthas Vineyard	MVY	Tisbury, MA	Vineyard Haven, MA	MVY Commission	MVY Commission	PR	
Nantucket Memorial	ACK	Nantucket, MA	Nantucket, MA	ACK Commission	ACK Commission	PR	48
New Bedford Regional	EWB	New Bedford, MA	New Bedford, MA	EWB Commission	EWB Commission	PR	80
Norwood Memorial	OWD	Norwood, MA	Norwood, MA	OWD Commission	OWD Commission	CR	50
Taunton Municipal	TAN	Taunton, MA	Taunton, MA	TAN Commission	TAN Commission	GA	43
Worcester Regional	ORH	Worcester, MA	Worcester, MA	Massport	Massport	PR	1,009
Danielson	5B3	Danielson, CT	Danielson, CT	Conn DOT	Northeast Air Mgmt	GA	238
Groton / New London	GON	Groton-New London, CT	Groton-New London, CT	Conn DOT	Conn DOT	PR	10

Figure 640-02(26) Current Airside Facilities Data

	Runways	Length (ft)	Width (ft)	Surface	Based Aircraft	Hangars	FBOs & Tenants
Hopedale Industrial Park	18-36	3,172	90	Asphalt	18	Yes	2
Mansfield Municipal	4-22 14-32	2,200 3,498	100 75	Turf Asphalt	106	Yes	3
Marthas Vineyard	6-24 15-33	5,500 100	100 75	Asphalt	50	Yes	NA
Nantucket Memorial	6-24 12-30 15-33	6,303 4,000 3,125	150 100 50	Asphalt	38	Yes	NA
New Bedford Regional	5-23 14-32	4,997 5,000	150 150	Asphalt	125	Yes	9
Norwood Memorial	10-28 17-35	4,001 4,007	75 150	Asphalt	188	Yes	7
Taunton Municipal	4-22 12-30	1,550 3,500	150 75	Turf Asphalt	79	Yes	5
Worcester Regional	11-29 15-33	6,999 5,500	150 150	Asphalt	90	Yes	NA
Danielson	13-31	2,700	75	Asphalt	58	Yes	2
Groton / New London	5-23 15-33	5,000 4,000	150 150	Asphalt	33	Yes	NA

640.03 Projections of Aviation Demand

Projections of aviation demand for the publicly owned airports in Rhode Island are used in the Rhode Island Airport System Plan (ASP) to help in determining if system airports have facilities that are adequate to meet current and future demand. For the ASP, demand projections have been developed through 2021. Projections of demand are used to identify the system's ability to fulfill the capacity performance measure, as well as to evaluate the individual benchmarks that have been identified for this measure.

This chapter provides baseline projections of based aircraft and general aviation operations and commercial service activity at Rhode Island's publicly owned airports. The projections are based on a 2001 baseline year as that was the most reliable historic data available at the time of the analysis. Since then, Landmark Aviation has developed a more thorough process for collecting operations and enplanements data at five of the publicly owned airports. The forecasts for T.F. Green Airport were completed in 2005 as part of the EIS process and incorporated herein. When available, this chapter includes the updated historic information to be used for informational purposes only as the 2002-2005 data does not warrant reconsideration of the forecasts

As is the case with most projections and forecasts, they are only forecasts, and they are subject to change based on factors not anticipated at this time such as drastic changes in fuel prices or availability, development of new technologies, fluctuations in the economy, or natural manmade disasters.

This chapter also presents an analysis of the services and facilities needed to realize higher rates of future demand and it forecasts what could be expected if the state's airport facilities were enhanced.

The assumptions and methodologies used to prepare baseline aviation demand projections for this report are discussed in the following sections:

- Section 03-01 **General Aviation Forecasts**
- Section 03-02 **T.F. Green Projections**
- Section 03-03 **Summary**

03-01 General Aviation Forecasts

The following sections include the forecast trends, considerations, based aircraft and operations projections, commercial service, and military service for the general aviation airports. Note that although Section 03-01 includes historic information for all six public airports, projections for T.F. Green are discussed separately in Section 03-02

03-01-01 General Aviation Industry Trends

In preparing a comprehensive system plan for the public use airports in Rhode Island, it is important to have a general understanding of recent and anticipated trends in the aviation industry as a whole. National trends provide insight for the development of aviation activity projections for the airports in the Rhode Island Aviation System. Some trends in the aviation industry will undoubtedly have a greater impact on Rhode Island than others; and it is possible that some trends that are anticipated and discussed in this chapter may have no pronounced impact on the State's aviation environment.

General aviation aircraft are defined as all aircraft that are not flown by commercial airlines or the military. A pronounced decline in the general aviation industry as a whole began in 1978,

resulting in the loss of over 100,000 manufacturing jobs. Additionally, aircraft production dropped from 18,000 aircraft to only 928 aircraft in 1994. Following this decline, which lasted throughout most of the 1980s and into the mid-1990s, the general aviation industry and general aviation activity rebounded.

The enactment of the General Aviation Revitalization Act of 1994, which established an 18-year Statute of Repose on the manufacturer of all general aviation aircraft and their components, in terms of liability, signaled a significant change in the industry. This Act spurred manufacturers such as Cessna and Piper Aircraft to reenter the productions of single-engine piston general aviation aircraft. In January 1997, Cessna produced its first new single-engine aircraft since 1986. Lancer International, Diamond Aircraft, and Mooney also produced new piston aircraft.

The positive impacts that the Act had on the general aviation industry are reflected in recent national statistics. Since 1994, statistics indicate an increase in general aviation activity, an increase in the active general aviation aircraft fleet, and an increase in shipments of fixed-wing general aviation aircraft. However, these positive trends in the general aviation industry have also recently been dampened by a recessionary national economy and by the residual impacts of the terrorist attacks of September 11, 2001. Almost all restrictions on general aviation flying that were implemented following September 11th have now been lifted, and business and corporate general aviation appear to be well positioned for recovery. New security measures at commercial service airports have spurred corporate interest in general aviation, as well. Because of safety concerns and time savings, businesses and corporations have become increasingly interested in how corporate or fractional aircraft ownership and charter services can better serve their air travel needs.

Specific trends related to general aviation activity, as identified in the *FAA Aerospace Forecasts, Fiscal Years 2002-2013*, developed by the U.S. Department of Transportation and other national groups, are discussed in following sections.

A. Aircraft Shipments and Billings

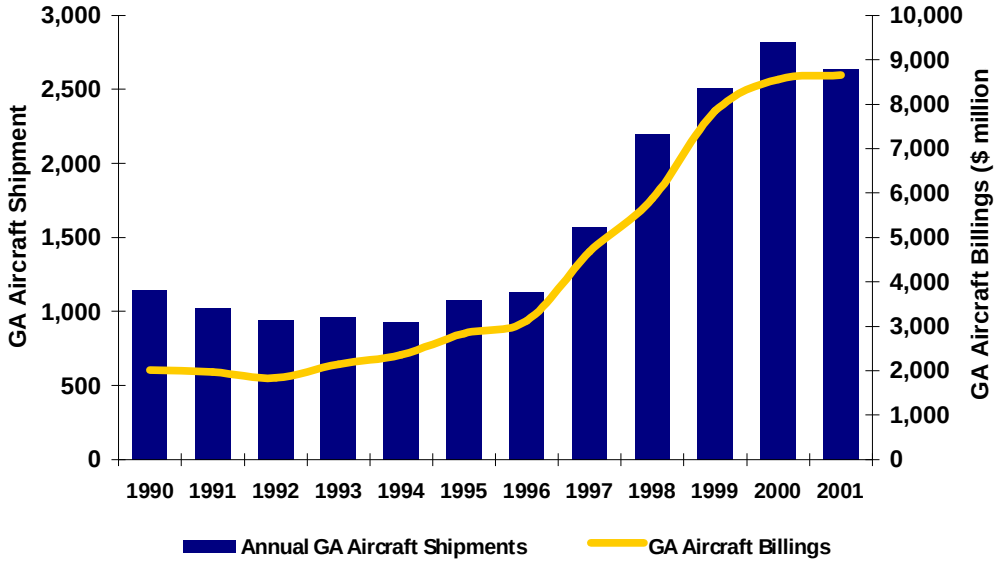
The General Aviation Manufacturers Association (GAMA) tracks and reports total shipments and billings of general aviation aircraft. GAMA statistics for 2001 indicate a decline in airplane shipments from figures reported in 2000. During 2001, U.S. general aviation aircraft shipments totaled 2,634 aircraft, a decrease of approximately of 6.6 percent from 2000, representing the first year of decreased demand for general aviation aircraft since 1994. The economic recession in 2001 and events of September 11th, led directly to the overall decline in general aviation airplane shipments. All sectors of the general aviation aircraft market, except business jets, experienced a decline.

Statistics indicate that growth did occur in general aviation business jet shipments. A number of factors contributed to the increase in business jet shipments, including the increase in the number of fractional ownership arrangements and the increase in the number of traditional corporate flight departments. The growth in this segment is attributed to increased business use of aircraft and the desire of corporate users to operate safe, efficient, and high-performance aircraft. These high-performance general aviation aircraft require airport facilities and services to be developed to a relatively higher and more demanding standard, a factor that will be considered as system development plans are identified in this analysis.

In addition to tracking general aviation aircraft shipments, GAMA also tracks total billings for general aviation aircraft, to both domestic and international customers. During 2001, U.S. general aviation aircraft billings totaled over $8.65 billion, an increase of approximately 0.8 percent over billings in 2000. Total billings for general aviation have nearly quadrupled since the early 1990s.

Figure 640-03(1) presents U.S. general aviation aircraft shipments and billings, on an annual basis, over the period from 1990 through 2001.

Figure 640-03(1) Historic U.S. General Aviation Aircraft Shipments and Billings



Source: General Aviation Manufacturers Association

B. Aircraft Fleet

The FAA annually tracks the number of active general aviation aircraft in the U.S. Active aircraft are those aircraft that are currently registered and fly at least one hour during the year. By tracking this information, the FAA is able to identify trends in the total number of active aircraft, as well as the types of aircraft operating in the active fleet. As summarized in Figure 640-03(2), nearly all areas of general aviation aircraft experienced strong growth between 1996 and 2001. Total active aircraft increased at an average annual rate of 2.5 percent over the last five years. Jet aircraft experienced the largest growth, up over 10 percent per year on average between 1996 and 2001. Based on estimates in the *FAA Aerospace Forecasts, Fiscal Years 2002-2013*, the active general aviation aircraft fleet is anticipated to increase at a much lower rate, from 221,213 aircraft in 2001 to 245,965 in 2013, representing an average annual growth rate of approximately 0.3 percent. This lower rate of growth is due primarily to the recent downturn in the economy and to the anticipated retirement of older single engine aircraft of the active fleet.

Figure 640-03(2) Projected U.S. Active General Aviation Fleet Mix

Aircraft Type	1996 Actual	2001 Estimate	2013 Projection	Annual Rate of Change 1996-2001	Annual Rate of Change 2001-2013
Single-engine piston	137,401	148,000	152,000	1.50%	0.22%
Multiengine piston	16,150	21,000	20,700	5.39%	-0.12%
Turboprop	5,716	5,750	5,950	0.12%	0.29%
Jet	4,424	7,150	10,850	10.08%	3.54%
Rotorcraft	6,570	7,150	7,510	1.71%	0.41%

Other 1/	20,869	27,100	28,250	5.36%	0.35%
TOTAL	**191,130**	**216,150**	**225,260**	**2.49%**	**0.34%**

Source: *FAA Aerospace Forecasts, Fiscal Years 2002-2013*

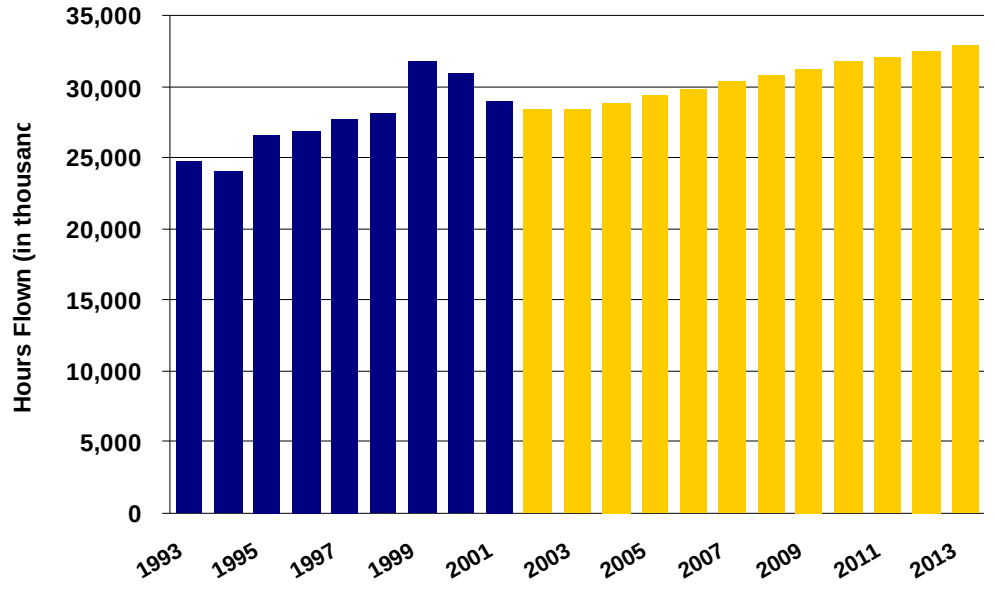
Note: 1/ Includes aircraft classified by the FAA as experimental and other

As shown in Figure 640-03(2), the total active aircraft fleet is forecast to experience an average annual growth rate of less than a half percent between 2001 and 2013. One of the most important trends identified by the FAA in these forecasts is the relatively strong growth anticipated in active general aviation jet aircraft. This trend illustrates a movement in the general aviation community towards higher-performing, more demanding aircraft. Growth in general aviation jet aircraft is projected to significantly outpace growth in all other segments of the general aviation aircraft fleet. Turboprop, rotorcraft, and other aircraft are projected to experience an average annual growth rate between 0.29 and 0.41 percent per year over the forecast period, while the number of active multi-engine piston aircraft is anticipated to decline over the forecast period.

C. Hours Flown

Hours flown in general aviation aircraft were at a 16-year low in 1994, but experienced a strong increase between 1994 and 1999. Hours flown fell slightly between 2000 and 2001. Figure 640-03(3) diagrams general aviation hours flown from 1993 and 2001 and projected hours flown through 2013. According to the FAA, the active general aviation fleet is forecast to grow by 0.3 percent annually during that 12-year period, and the projected average annual rate of growth in hours flown is forecast at 1.1 percent. By 2013, hours flown by general aviation aircraft are estimated at 32.9 million, compared to 29.0 million in 2001.

Figure 640-03(3) Historic and Projected Total U.S. General Aviation Hours Flown



Source: *FAA Aerospace Forecasts, Fiscal Years 2002-2013*

D. Business Use of General Aviation Aircraft

Many businesses throughout the U.S. depend on scheduled commercial service airlines, as well as on general aviation aircraft, to add to their productivity and efficiency. The Rhode Island Airport System is essential to businesses throughout the State, operating as an effective conduit to clients, as well as to corporate and manufacturing facilities. Without an efficient airport system, the State would be hampered in its ability to participate in an increasingly global marketplace. There is often no practical alternative to air transportation in today's marketplace. Business aviation not only supports the economic vitality of individual companies, but also for the State as a whole. In order to support growing business activity, decisions impacting the development of Rhode Island's Airport System are critical to the overall economic health of the State.

Business aviation is one of the quickest growing facets of general aviation, and consists of companies and individuals using aircraft as a tool to improve efficiency and productivity in their businesses. Many of the nation's leading employers who utilize general aviation are also members of the National Business Aircraft Association (NBAA). Data from NBAA show that many of the top U.S. businesses use general aviation aircraft. Specifically, the NBAA's Business Aviation Fact Book 2001 indicates that approximately 69 percent of all businesses included in the Fortune 500 operate general aviation aircraft. Additionally, 89 of the Fortune 100 companies operate general aviation aircraft.

Business use of general aviation aircraft ranges from the rental of small, single-engine aircraft to multiple aircraft corporate fleets that are supported by dedicated flight crews and mechanics. The use of general aviation aircraft allows employers to efficiently transport priority personnel and air cargo. Businesses use general aviation aircraft to link multiple office locations and to reach existing and potential customers. The use of business aircraft by smaller companies has escalated as various chartering, leasing, time-sharing, interchange agreements, partnerships, and management contracts have emerged.

NBAA statistics support this fact by demonstrating that the number of companies operating business aircraft increased from 6,584 in 1991 to 9,317 in 2000, an increase of approximately 40 percent. Fractional ownership arrangements have also experienced rapid growth. In 1999, NBAA estimated that 2,591 companies used fractional ownership arrangements; by 2000 that number had grown to 3,694 companies, a growth of over 40 percent in a single year.

E. Summary

The trends analysis sets a stage for understanding how aviation activity in Rhode Island compares to general aviation activity in the U.S., and it establishes a basis for predicting how aviation may be expected to grow and change in the future. Having this frame of reference is essential to developing realistic projections of aviation demand and to identifying viable alternatives for improving Rhode Island's Airport System.

Notwithstanding the limitation that has been noted for the based aircraft and aircraft operation data, it is important to understand the sensitivity of the ultimate forecast numbers on the role and development needs on the individual airports. In many situations even a substantive change in the forecasts may not trigger a change in the airport role or development requirements. This may especially apply to some of the GA airports in RI that have such a low number of operations (10,000 +/- in 2021). That is not to say, that certain facilities do not need to be upgraded to meet current FAA standards, or that runway length at some airports may be marginal, or that additional facilities and

amenities are needed as the pilot survey indicates. What the numbers do say is that the GA airports in the RI system remain reasonably stable throughout the planning horizon.

Areas that may require more detailed analyses are typically examined more extensively at the airport master plan level. For example an airport master plan has been initiated at Newport State Airport to examine the airport needs in more detail and it includes new forecasts. The T.F.Green section of this ASP in fact utilizes the forecast analysis from the EIS because it is far more comprehensive than the modest effort in the ASP. Clearly the forecast at a major airport such as PVD is based on more accurate base data and relies heavily on national and regional trends. It also addresses alternative scenarios with respect to the role of the airport. Ultimately it serves as the supporting statement of "purpose and need" for the project.

In any event as the system changes the data and forecasts need to be examined on a routine basis to ensure that the performance of the system is being maintained.

03-01-02 General Aviation Forecast Considerations

General aviation activity represents all facets of civil aviation, except activity by certificated route air carriers, commuters, and the military. All airports being evaluated in the Rhode Island ASP, accommodate some level of general aviation activity. Projections of based aircraft, fleet mix, and general aviation operations were prepared for the system airports in the State of Rhode Island (excluding T.F. Green). These demand indicators are most indicative of each airport's future activity levels. These demand components are defined as follows:

- **Based aircraft -** The total number of active general aviation aircraft that are either hangared or tied down at the airport on a permanent basis.
- **Fleet Mix -** The type of aircraft that operate or are based at an airport (i.e. single-engine, multi-engine, jet, etc.)
- **Operations -** An operation is defined as a landing or a takeoff. Both a landing and a takeoff, such as a touch-and-go, account for two operations.

General aviation activity is influenced by factors such as local population, employment, income levels, the cost of flying, and the number of based aircraft at an airport. Several methodologies were considered in order to develop the projections presented in this chapter. Preferred baseline projections, presented in this chapter, are based on the following considerations:

- The historic and current condition of Rhode Island's airports
- The historic and current aircraft sales and use tax in Rhode Island
- Historic record keeping at Rhode Island's airports

Each of these considerations is discussed below. Based on changes to the aforementioned over the 20-year forecast period and an airport user needs survey, this chapter explains how baseline projections presented in this chapter could be impacted.

A. Condition of Rhode Island's Airports

The Rhode Island Department of Transportation (RIDOT) owns the five public-use general aviation airports in Rhode Island, along with T.F. Green. Throughout much of the 1980's and into the 1990's RIDOT made little investment in or improvements to the general aviation airports in Rhode Island. During this time, RIDOT put nearly all its resources into developing T.F. Green. Even the commercial service entitlement funds received by the Westerly and the Block Island Airport were spent on development at T.F. Green. During this time, however, the condition of the general aviation airports in Rhode Island steadily deteriorated.

In 1992, Rhode Island Airport Corporation (RIAC), a quasi-public State agency was formed to assume the responsibility of operating Rhode Island's six publicly owned airports. At the time RIAC was formed, the general aviation airports were not keeping up with many of FAA's current airport design standards. Over the last ten years, RIAC has been rehabilitating the airports to meet these standards. This work is still in progress. RIAC has worked closely with Landmark Aviation Services, the manager of the general aviation airports, to make the general aviation airports self-sufficient entities.

Due to the condition of the general aviation airports, RIAC has not actively marketed the airports to corporate and leisure users. Facilities and services are not currently in place to compete effectively with airports in neighboring states. The facilities and services desired for each airport as determined by the user needs survey are discussed at the end of this Chapter. Until many of these facilities and services are in place, it is assumed that Rhode Island's general aviation airports will have growth that is reflective of a "business as usual" scenario.

B. Rhode Island Aircraft Sales and Use Tax

An important consideration in the forecast is the recent repeal of the state aircraft sales and use tax. The repeal, effective January 1, 2005, exempts the sale, storage, use or other consumption of new or used aircraft and aircraft parts from taxation. The signing of the legislation places Rhode Island on par with its neighboring states (Massachusetts and Connecticut) providing equitable tax treatment for aircraft owners. Prior to the repeal, many aircraft purchasers may have chosen to base their aircraft in Massachusetts or Connecticut to avoid the seven (7) percent sales tax. Similarly, the seven (7) percent tax on parts and service, payable in Rhode Island, may have influenced aircraft owners to service their aircraft outside the state. Consequently, Rhode Island's ability to attract aircraft may have been negatively influenced by competition from adjacent states for based aircraft and aircraft maintenance. As a result, the GA market in terms of growth has been fairly stagnant or on the decline.

Upon further review, the Rhode Island based aircraft populations actually began to decline in 1994, prior to the aviation tax repeals in Connecticut and Massachusetts, which took place in 1997 and 2001.

It is not exactly clear when Rhode Island originally introduced the aircraft sales and use tax; however it is believed that a tax increase to seven (7) percent from six (6) percent imposed on July 1, 1992 may have also played a role in the decline of based aircraft, especially that period between 1994 and 1997. Similar to the tax repeals, this increase also put Rhode Island at a disadvantage, because both Connecticut and Massachusetts were imposing a lesser tax rate on both aircraft sales and utilization. Prior to their repeals, Connecticut imposed a six (6) percent aviation tax, while Massachusetts imposed a five (5) percent tax, compared to seven (7) percent in Rhode Island.

The historic trends also indicate that since 2001, the Rhode Island aircraft population has actually increased to 324 from 305 in 2005 or approximately six (6) percent. Overall, it is apparent that the Rhode Island aircraft population has fluctuated over the last 15 years. However, since 2001 the based aircraft population data reflects limited positive growth, which should be sustained as a result of the recent aviation tax repeal. It is anticipated that Rhode Island aircraft owners may explore opportunities to base their aircraft in Rhode Island rather than the adjacent states, which in turn, should also have a positive effect on business at aviation support facilities.

It is important to note, that the Rhode Island aircraft population will only increase to the extent that supporting infrastructure allows. In other words, if facilities such as tie-downs and hangars aren't available or developed to meet associated levels of demand, then the

aircraft population growth may be limited due to physical constraints. Therefore, it will be critical to accommodate this trend in future activity levels, possibly further enhanced by the 2005 tax repeal, and plan to develop future airport facilities to absorb potential new based aircraft.

C. Historic Airport Activity

For the Rhode Island ASP, reliable historic general aviation data for each airport in the system was not readily available for all activity indicators. All general aviation airports in Rhode Island are non-towered, with the exception of Quonset. The tower at this airport is contracted and paid for by the military. As such, the operational counts at this tower are not published by the FAA. As a result, annual operations for Quonset and non-towered airports are the operator's "best estimate" of the takeoffs and landings that their airport serves each year. Typically, greater confidence can be placed in the historic based aircraft data; based aircraft can be more easily counted than operations. However, in Rhode Island, due to the seasonal influx of residents and visitors during the summer months, based aircraft counts can also vary at each airport, depending on what time of the year they are taken. Other reasons for the inconsistencies in based aircraft and operations reported historically for Rhode Island's airports include the change in airport management in the1990s and counting methods used by RIDOT versus those used by RIAC. In 2001, RIAC, together with Landmark Aviation Services, outlined appropriate counting procedures for the publicly owned airports in the State. However, because of the historic counting inconsistencies, it is difficult to derive statistically valid historic trends at Rhode Island airports from which to project general aviation activity.

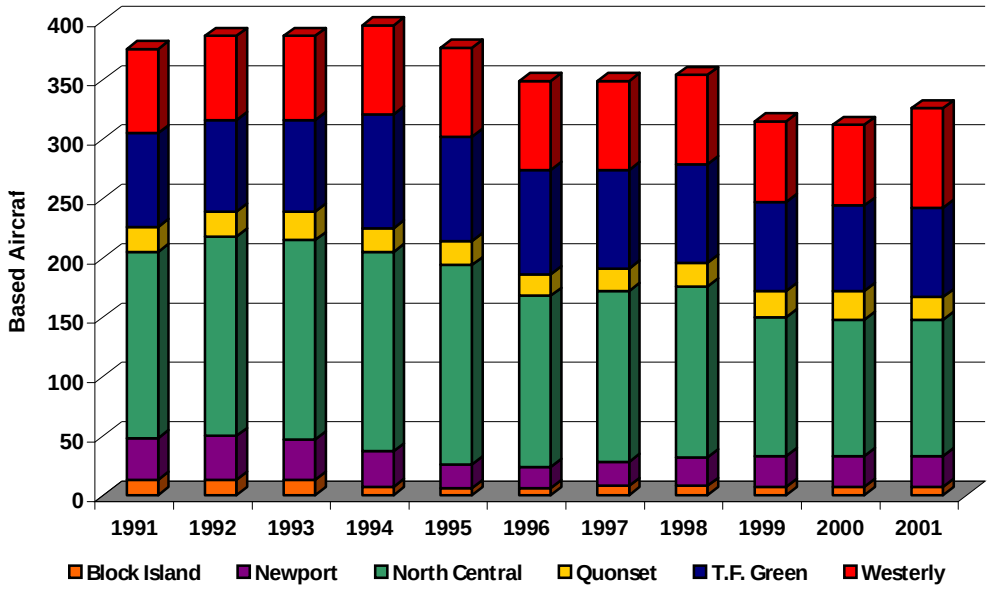
Historic statewide based aircraft are presented in Figure 640-03(4). In 2001, 326 aircraft were based at Rhode Island's publicly owned airports. This does not include military aircraft, nor does this number include aircraft based at privately owned airports. As shown in Figure 640-03(5), according to the data reported by Landmark Aviation Services and the FAA's *Terminal Area Forecasts*, the number of based aircraft in Rhode Island has fluctuated. As noted earlier, this trend may be the result of reporting errors or inconsistencies. It is possible that prior to RIAC's management of the airports, based aircraft at one or all of the airports may have been over-reported. The greatest confidence can be placed in the 2001 based aircraft counts. More recent based aircraft data is not currently available.

Figure 640-03(4) Historic Based Aircraft in Rhode Island (Excluding Military)

	Block		North		T.F.		Statewide
Year	Island	Newport	Central	Quonset	Green	Westerly	Total
1991	13	35	157	21	79	71	**376**
1992	13	37	168	21	77	71	**387**
1993	13	34	168	24	77	71	**387**
1994	7	30	168	20	96	75	**396**
1995	6	20	168	20	88	75	**377**
1996	6	18	144	18	88	75	**349**
1997	8	20	144	19	83	75	**349**
1998	8	24	144	20	83	75	**354**
1999	7	26	117	22	75	68	**315**
2000	7	26	115	24	72	68	**312**
2001	7	26	115	19	75	84	**326**

Sources: *Terminal Area Forecasts*; Landmark Aviation Services

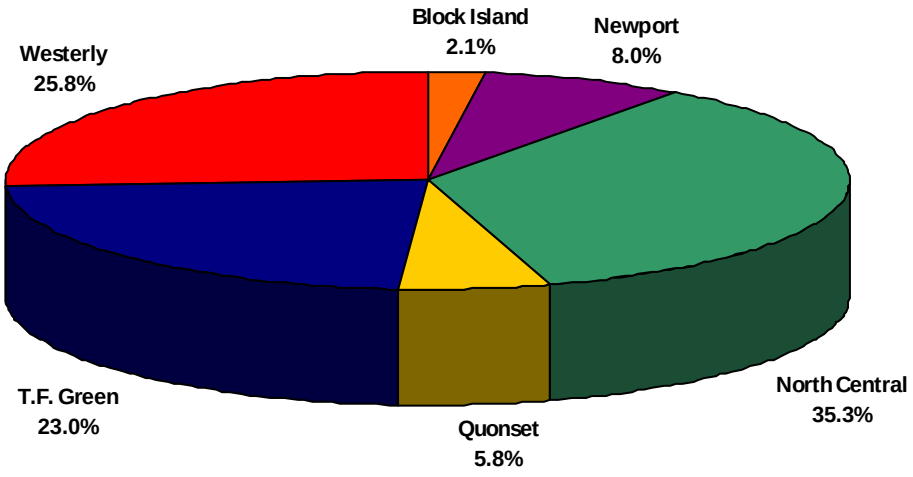
Figure 640-03(5) Historic Based Aircraft



Sources: Terminal Area Forecasts; Landmark Aviation Services

Figure 640-03(6) presents each airport's share of the statewide 2001 based aircraft. North Central captured 35 percent of the statewide based aircraft. About 26 percent of the based aircraft in Rhode Island were located at Westerly Airport and 23 percent were based at T.F. Green. Robert F. Wood Airpark, Quonset, and Block Island each accounted for less than 10 percent of the statewide based aircraft.

Figure 640-03(6) Airport Share of Rhode Island's 2001 Based Aircraft



Source: Landmark Aviation Services

Historic annual general aviation operations are presented in Figure 640-03(7). Similar to based aircraft, general aviation operations "reportedly" experienced an overall decline between 1991 and 2001. General aviation operations at T.F. Green are based on actual tower counts. General aviation operations at T.F. Green were down nearly 50 percent between 1991 and 2001. Since the time of this analysis, more recent historic information

was collected from Landmark Aviation Services for years 2002 through 2005 which also shows a continuing decline in total operations for the system although certain individual airports are seeing an increase. According to the T.F. Green Master Plan, much of the smaller general aviation aircraft activity previously being accommodated at T. F. Green has relocated to North Central Airport in that this airport serves as a reliever facility for general aviation activity. Also, as noted in Chapter 640.02-02-02, *North Central Airport (SFZ) Inventory*, a full accounting of based operations at North Central has not traditionally occurred, in that only aircraft that have been based specifically with Landmark Aviation Services, and not the other FBOs, have been included in the based aircraft operational totals. In order to establish an operations baseline that accurately reflected the current operations at the airport, interviews were conducted with representatives of each of the airport's FBOs. Through this process, an updated total of 65,000 operations was established for the airport, and is reflected below. Since then, more recent data has been collected reflecting a continuing decline since 2001.

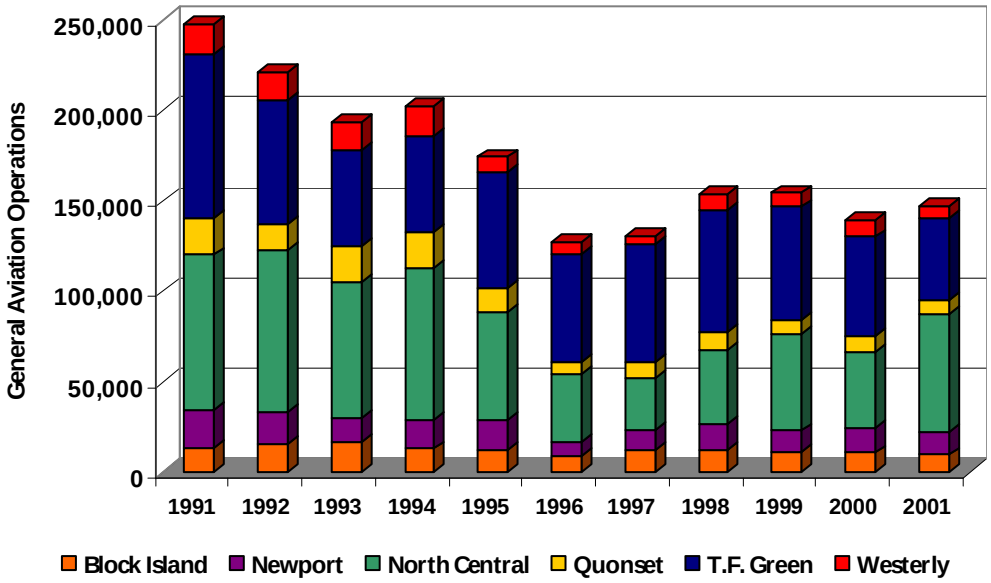
Figure 640-03(7) Historic General Aviation Operations

Year	Block Island	Newport	North Central	Quonset	T.F. Green	Westerly	Statewide Total
1991	13,658	20,507	85,896	20,802	89,707	17,058	247,628
1992	16,020	17,706	88,896	14,581	68,030	15,810	221,043
1993	16,562	13,753	75,118	19,252	53,128	15,935	193,748
1994	12,908	15,984	84,338	19,252	53,479	16,006	201,967
1995	12,504	16,824	59,537	13,289	63,661	8,215	174,030
1996	9,124	8,137	37,464	6,576	59,063	6,600	126,964
1997	12,269	11,059	28,411	9,123	64,808	4,534	130,204
1998	12,832	13,533	41,054	10,534	66,583	9,369	153,905
1999	11,419	11,405	53,980	7,368	62,410	7,617	154,199
2000	10,755	13,521	41,984	8,767	55,000	9,453	139,480
2001	9,674	12,485	65,000	7,927	45,095	6,585	146,766
2002	10,799	16,091	48,015	11,193	43,937	7,854	137,869
2003	11,504	18,454	32,108	12,964	42,878	10,821	128,729
2004	10,912	19,151	24,880	15,782	36,646	15,696	123,067
2005	12,794	18,699	29,510	15,333	TBD	16,206	

Sources: *Terminal Area Forecasts*; Landmark Aviation Services; Tower Counts

As depicted in Figure 640-03(8), there appears to be a downward trend in general aviation activity. However, it is highly probable that operations were reported differently in various years. There may not have actually been the decline in annual general aviation operations as shown, simply a more accurate counting of annual operations in recent years.

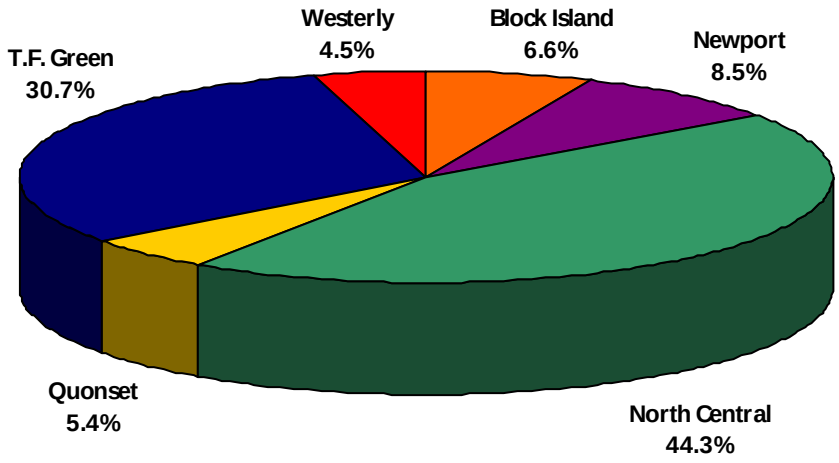
Figure 640-03(8) Historic General Aviation Operations



Sources: *Terminal Area Forecasts*; Landmark Aviation Services

About 44 percent of total statewide general aviation operations occurred at North Central in 2001, as shown in Figure 640-03(9). Over 30 percent of statewide general aviation operations took off and landed at T.F. Green. Less than 9 percent of the statewide general aviation operations occurred at each of the remaining airports in Rhode Island.

Figure 640-03(9) Airport Share of Rhode Island's 2001 General Aviation Operations



Source: Landmark Aviation Services

03-01-03 Baseline Projection of Based Aircraft

Several methodologies were considered to project based aircraft at the five study airports. As a reminder, the methodologies and results for T.F. Green are discussed separately in Section 03-02. These methodologies included trend analysis, market share, and methodologies based on socioeconomic factors. Based on the lack of confidence placed in the historic based aircraft counts, it was not possible to project based aircraft for Rhode Island's airports using trend analysis or traditional regression analysis techniques. Due to the "reported" downward trend in based aircraft, it was also difficult to develop projections of based aircraft using socioeconomic factors such as population, employment, and income. Rhode Island experienced positive socioeconomic and demographic growth throughout the 1990's. Reasonably, this positive growth would translate directly into positive growth in general aviation. However, this positive growth did not correlate with based aircraft trends for the same period. Rhode Island's socioeconomic and demographic indicators show an inverse relationship with the trends in general aviation that have been reported for the State.

Recognizing the inconsistency of these factors and on the data available, viable methodologies that are available to project based aircraft are limited. After review of available activity data for study airports and after consideration of methodologies that could be used to project based aircraft, a market share methodology was selected as the sole projection technique for this demand factor. The FAA's most recent projection of U.S. active general aviation aircraft was used to project based aircraft for Rhode Island's airports. The selected methodology used a top down approach. (See Figure 640-03(10).) For this methodology, Rhode Island's share of total U.S. active general aviation aircraft in 2001 was assumed to remain constant throughout the forecast period. Based on this assumption and using the FAA *Aerospace Forecasts Fiscal Years 2002-2013*, a statewide projection of based aircraft for Rhode Island was developed.

Using this approach, statewide based aircraft are projected to increase from 251 in 2001 to 269 in 2021, an average annual growth rate of 0.36 percent. By applying each airport's current market share of statewide based aircraft in 2001, individual airport projections of based aircraft were produced.

Figure 640-03(10) Projections of Rhode Island's Based Aircraft

		2001 Market	Projected Based Aircraft		
Airport	**2001**	**Share**	**2006**	**2011**	**2021**
Block Island	7	2.8%	7	7	8
Robert F. Wood Airpark (Newport)	26	10.4%	26	27	28
North Central	115	45.8%	115	118	123
Quonset	19	7.6%	19	20	20
Westerly	84	33.5%	84	86	90
Statewide Total (excl. T.F.Green)	**251**	**100.0%**	**250**	**258**	**269**
FAA U.S. Active Aircraft	216,150		215,690	222,410	232,053
RI % of US	0.12%		0.12%	0.12%	0.12%

Source: Wilbur Smith Associates

It should be noted that these baseline projections of based aircraft reflect a continuation of historic conditions. These projections do not consider additional demand that could be realized through either, or a combination of, improved facilities and services at study airports or a repeal/reduction of the State tax on general aviation aircraft sales and services.

A. Based Aircraft Fleet Mix

Figure 640-03(11) presents the 2001 based aircraft fleet mix for the system airports in Rhode Island. In projecting the statewide based aircraft fleet mix, consideration was given to the continually changing national active general aviation aircraft fleet and the existing fleet mix in the State. Figure 640-03(12) presents the based aircraft fleet mix for Rhode Island and the active general aviation aircraft fleet in the U.S. The share of multi-engine and jet aircraft in the State fleet was higher than the share for the U.S. fleet. Other aircraft, which includes helicopters, gliders, ultralights, and other experimental aircraft, composed over 6 percent of the national active aircraft fleet. There was only one aircraft in the other category in Rhode Island (located at Westerly) or less than one percent of the State's fleet.

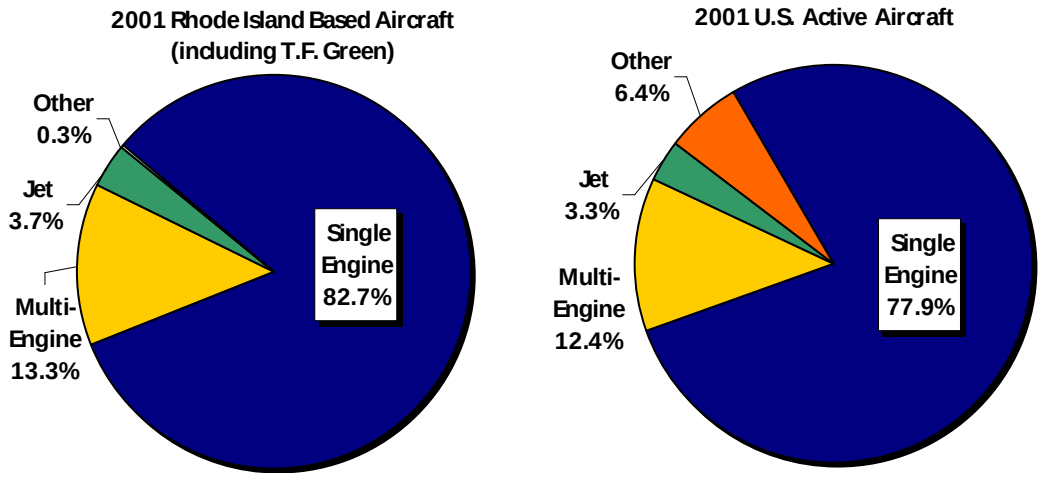
Figure 640-03(11) 2001 Based Aircraft Fleet Mix at Rhode Island Airports

Airport	Single Engine	Multi-Engine	Jet	Other*	Total
Block Island	7	0	0	0	**7**
Robert F. Wood Airpark (Newport)	24	2	0	0	**26**
North Central	100	15	0	0	**115**
Quonset	17	2	0	0	**19**
Westerly	66	15	2	1	**84**
State Total (excl. T.F. Green)	**214**	**34**	**2**	**1**	**251**

Source: Landmark Aviation Services

Note: *Other includes helicopters, gliders, ultralights, and other experimental aircraft.

Figure 640-03(12) Comparison of 2001 Rhode Island and U.S General Aviation Fleet



Sources: Wilbur Smith Associates; *FAA Aerospace Forecasts Fiscal Years 2002-2013*

The FAA asserts, in the *FAA Aerospace Forecasts FY 2002-2013*, that there will be strong growth in active general aviation jet aircraft. This trend illustrates a movement in general aviation toward more sophisticated, higher performing, and more demanding aircraft. This trend will impact the types of activity occurring at general aviation airports and the types of facilities and services required at those airports. The FAA projects that the percentage increase in jet aircraft will significantly outpace growth in other components of the general aviation aircraft fleet. Single engine and multi-engine aircraft

in the national fleet are projected to experience an average annual growth rate of less than 0.5 percent per year over the forecast period.

For this analysis, a based aircraft fleet mix for each airport and the State as a whole was developed through 2021. Figure 640-03(13) presents the based aircraft fleet mix for Rhode Island. It is projected that, in 2021, single-engine aircraft will account for 80.7 percent of the total based aircraft in Rhode Island. Jet aircraft will experience the largest increase, comprising 5.4 percent of Rhode Island's total based aircraft in 2021, compared to 3.7 percent in 2001.

Figure 640-03(13) Projection of Based Aircraft Fleet Mix in Rhode Island in 2021

Airport	Single Engine	Multi-Engine	Jet	Other 1/	Total
Block Island	8	0	0	0	8
Robert F. Wood Airpark (Newport)	26	2	0	0	28
North Central	106	17	1	0	123
Quonset	17	2	1	0	20
Westerly	71	15	3	1	90
State Total (excl. T.F. Green)	**228**	**35**	**5**	**1**	**269**

Source: Wilbur Smith Associates

Note: *1/ Other includes helicopters, gliders, ultralights, and other experimental aircraft.

03-01-04 Baseline Projection of General Aviation Operations

The projection of operational demand at an airport determines the need for airside improvements. Total annual operational demand can consist of several types of activity including air carrier, military, air taxi, and general aviation. For those airports with scheduled commercial air service, air carrier activity was projected separately, in a subsequent section. For those airports with annual military operations, the military operations were subtracted from the total operational estimate, as were commercial operations, to arrive at an annual general aviation activity level for each system airport. Air taxi operations are included in the general aviation operations projections. Note that although more recent historic information is currently available through 2005, it does not warrant reconsideration of the forecasts. Therefore, the baseline year of 2001 is maintained.

Several methodologies were investigated to project general aviation operations for 2006, 2011, and 2021. As discussed previously, the inherent limitations in the historic data for general aviation operations makes it impossible to develop projections based on historic operational growth. The "reported" decline in general aviation operations prevents development of forecasts using traditional techniques such as trend analysis or regression. A model using socioeconomic factors, such as population, may generate higher forecasts than anticipated.

The average annual growth rate of general aviation aircraft hours flown, projected by FAA, was used to project general aviation operations at Rhode Island's system airports. According to forecasts in the *FAA Aerospace Forecast FY 2002-2013*, hours flown by general aviation aircraft are projected to increase 1.1 percent per year, on average, over the forecast period. It is assumed that general aviation operations in Rhode Island will increase similar to the U.S. as a whole.

Figure 640-03(14) presents the baseline projection of general aviation operations at each of Rhode Island's airports. Operations at the airports (excluding T.F. Green) are projected to grow slowly at 0.6 percent per year on average between 2001 and 2006. Over the next 15 years (2006 to 2021),

growth in general aviation operations at Rhode Island's airports is projected to grow at a higher average annual rate (1.3 percent). General aviation operations at system airports are projected to reach 128,000 by 2021, up from nearly 102,000 in 2001. This represents an average annual growth rate of 1.1 over the entire forecast period.

Figure 640-03(14) Projection of General Aviation Operations at Rhode Island Airports

		Projected General Aviation Operations		
Airport	**Actual 2001**	**2006**	**2011**	**2021**
Block Island	9,674	10,000	10,800	12,300
Robert F. Wood Airpark (Newport)	12,485	12,800	13,800	15,700
North Central	65,000	66,900	72,000	81,700
Quonset	7,927	8,200	8,800	10,000
Westerly	6,585	6,800	7,300	8,300
State Total (excl. T.F. Green)	**101,671**	**104,700**	**112,700**	**128,000**

Sources: Wilbur Smith Associates

Again, the baseline general aviation operational projections assume that historic conditions could continue to suppress future demand.

Local/Itinerant Split

The split between local and itinerant general aviation operations was projected for each of the Rhode Island system airports. The FAA defines local operations as operations performed by aircraft that:

Operate in the local traffic pattern or within sight of an airport
Are known to be departing for or arriving from flight in local practice areas located within a 20-miles radius of the airport, or
Are expecting simulated instrument approaches in low pass at an airport.

Itinerant operations are all other operations, including air taxi. Figure 640-03(15) presents the 2001 local/itinerant splits for the system airports. Overall, 36 percent of the State's general aviation operations were local operations. Block Island had the fewest local operations, with only 5 percent of its total general aviation operations in 2001. Robert F. Wood Airpark, North Central, and Westerly each had approximately half local operations and half itinerant operations in 2001.

Figure 640-03(15) 2001 Local/Itinerant Split of General Aviation Operations at Rhode Island Airports

Airport	**Local Operations**	**Percent Local**	**Itinerant Operations**	**Percent Itinerant**	**Total General Aviation Operations**
Block Island	521	5%	9,153	95%	9,674
Robert F. Wood Airpark (Newport)	6,060	49%	6,425	51%	12,485
North Central	31,157	48%	33,843	52%	65,000
Quonset	2,021	25%	5,906	75%	7,927
Westerly	3,439	52%	3,146	48%	6,585
State Total (excl. T.F. Green)	**43,198**	**42%**	**58,475**	**58%**	**101,671**

Sources: FAA Form-5010

Figure 640-03(16) reflects how each airport's split between local/itinerant general aviation operations is expected to change by 2021 The local/itinerant split at the five general aviation airports in the State is projected to remain unchanged throughout the forecast period.

Figure 640-03(16) 2021 Projection of Local/Itinerant Split at Rhode Island Airports

	Local Operations	Percent Local	Itinerant Operations	Percent Itinerant	Total General Aviation Operations
Block Island	700	5%	11,600	95%	12,300
Robert F. Wood Airpark (Newport)	7,600	49%	8,100	51%	15,700
North Central	39,200	48%	42,500	52%	81,700
Quonset	2,500	25%	7,500	75%	10,000
Westerly	4,300	52%	4,000	48%	8,300
State Total (excl. T.F. Green)	**54,300**	**42%**	**73,700**	**58%**	**128,000**

Sources: Wilbur Smith Associates

03-01-05 Commercial Service Projections for Block Island and Westerly

Besides T.F. Green, there are two other airports in Rhode Island with scheduled commercial air service. New England Airlines, a FAR Part 135 operator, operates scheduled nonstop service between Westerly and Block Island. This service is provided with single and multi-engine piston aircraft. New England Airlines operates a unique schedule, expanding during the high tourist season. Between Memorial Day and Labor Day, New England Airlines schedules hourly service between Westerly and Block Island. In the off-season, the carrier operates nonstop service every other hour between Westerly and Block Island. Based on the nature of this service, many national commercial service trends do not have the same impact on Westerly and Block Island as on a larger airport served by more traditional commercial carriers, like T.F. Green.

Commercial service activity projections were developed for both passenger enplanements and annual airline operations at Block Island and Westerly. Calendar year 2001 was used as the base year for these projections. Projections for T.F. Green, developed in conjunction with the airport's master planning process are summarized in the next section.

It is important to note that annual enplanements for a particular airport is an important element in receiving funding from the FAA. An airport having over 10,000 annual enplanements, known as a Primary Service airport, can receive annual Entitlement grants from the FAA which is money that can be spent on projects the FAA deems eligible.

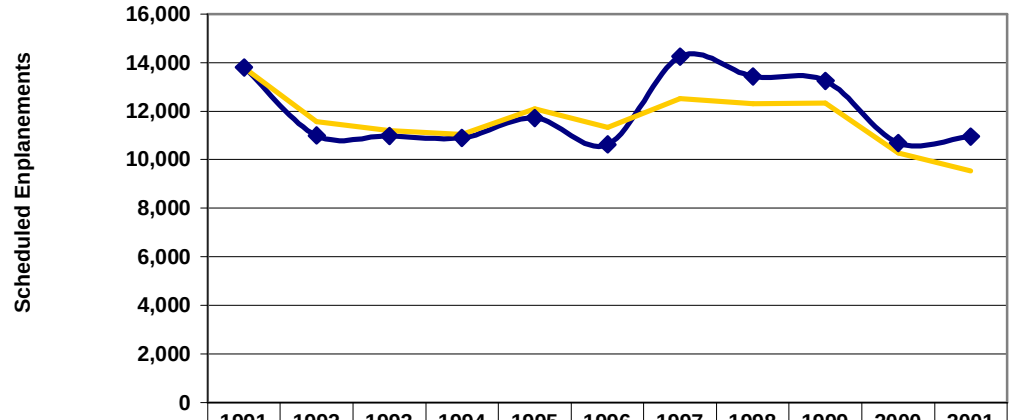
A. Enplanements

Figure 640-03(17) provides a summary of historic enplanements at Westerly and Block Island. Enplanements at each airport tend to mirror each other. After a drop in enplanements in the early 1990s, enplanements at both airports remained relatively unchanged for five years. Enplanements rose again slightly in the late 1990s, but fell in 2000. In 2001, 20,400 passengers enplaned scheduled flights at Block Island and Westerly, down from 27,600 ten years earlier. This represents an average annual decline of 2.9 percent between 1991 and 2001. Recently collected historic information from Landmark Aviation Services reflects a continued decline since 2001 as listed below. As a reminder, data from 2002 through 2005 is for informational purposes only as it does not

warrant reconsideration of the forecasts. The forecasts continue to use 2001 a baseline year.

	WST	BID
2002	9,120	9,245
2003	7,828	8,085
2004	7,224	7,003
2005	7,640	7,746

Figure 640-03(17) Historic Enplanements at Block Island and Westerly Airports



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Block Island	13,801	10,994	10,984	10,906	11,717	10,628	14,253	13,432	13,245	10,691	10,947
Westerly	13,785	11,556	11,204	11,048	12,089	11,327	12,502	12,316	12,342	10,263	9,534

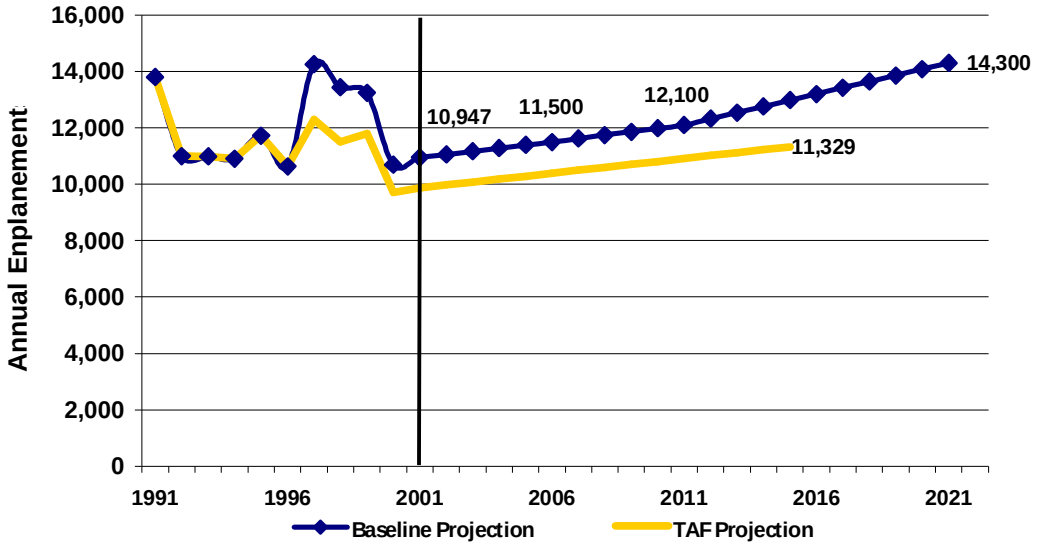
Sources: FAA Terminal Area Forecast; Landmark Aviation Services

Commercial service enplanement projections are prepared to provide a basis for determining the general adequacy of the airports to meet the Rhode Island's unique needs for air travel to Block Island. For this Plan, two forecast scenarios were developed for commercial service enplanements at Block Island and Westerly. The preferred baseline projections were developed using a market share approach in which airport specific trends and conditions in aviation were compared to national trends and conditions in aviation during the same historical period. This approach allows the use of the approved national forecasts published by the FAA, but also takes into account historical trends in activity.

1) Block Island

Through discussions with New England Airlines, the carrier does not have any plans to increase its fleet or scheduled operations throughout the forecast period. Based on this, enplanements at Westerly and Block Island are projected to experience minimal growth over that period. Combined with an historic decline in U.S. market share, the preferred baseline enplanements projection for Block Island uses a decreasing market share approach.

Using this approach, enplanements at Block Island are projected to reach 14,300 by 2021; an average annual growth rate of 1.3 percent between 2001 and 2021. (See Figure 640-03(18).) Using this decreasing market share approach, the resultant growth in enplanements is slightly higher than the most recent Terminal Area Forecast (TAF) projection for commercial enplanements at this airport. The FAA projects 11,300 enplanements by 2015. The FAA projection uses 2000 data and represents an average annual growth rate of 1.0 percent over the FAA's 15-year forecast periodFigure 640-03(18) Enplanement Projections For Block Island

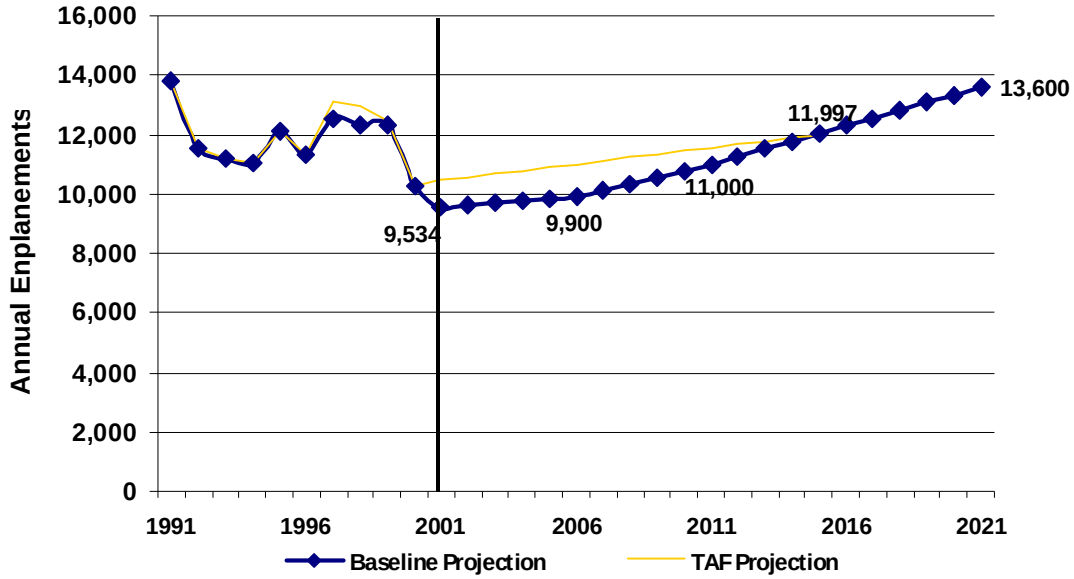


Source: Wilbur Smith Associates

2) Westerly

The projections of enplanements for Westerly were based on the same assumptions as the enplanement projections for Block Island. Based on historic enplanements trends and discussions with New England Airlines, a decreasing market share of total U.S. enplanements was chosen as the preferred methodology to project this airport's future enplanements. By applying this methodology, the airport's enplanements are expected to increase at 1.8 percent per year on average over the planning period, reaching 13,600 annual enplanements in 2021. The preferred projection is presented in Figure 640-03(19). The preferred growth in enplanements is slightly higher than the growth projected for this airport in the TAF. The TAF projects enplanements at Westerly to increase 1.0 percent per year on average between 2000 and 2015, reaching 12,000 passengers annually by 2015.

Figure 640-03(19) Enplanement Projections For Westerly



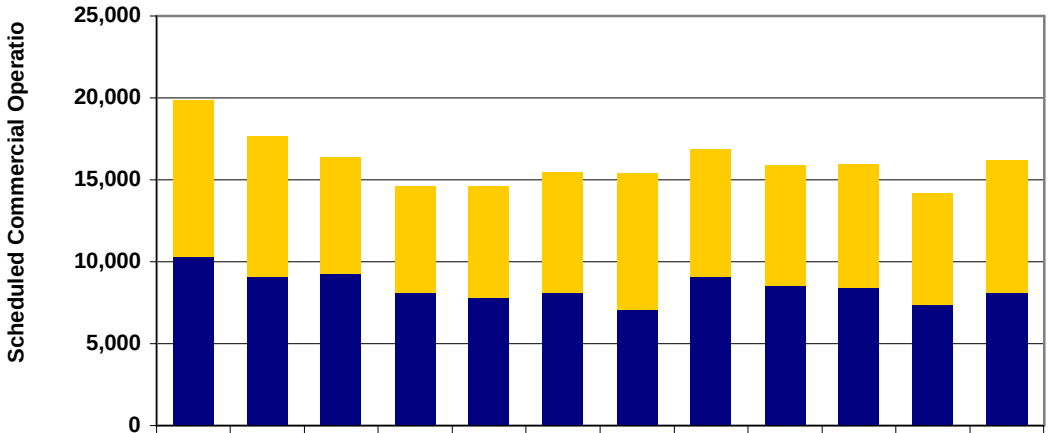
Source: Wilbur Smith Associates

B. Commercial Service Operations

Historic trends in commercial service operations Block Island and Westerly are provided in Figure 640-03(20). Recently collected historic information from Landmark Aviation Services reflects a continued decline since 2001 as listed below. As a reminder, data from 2002 through 2005 is for informational purposes only as it does not warrant reconsideration of the forecasts. The forecasts continue to use 2001 a baseline year. In 2001, over 16,100 commercial service operations were scheduled at the two airports. Scheduled commercial service operations fell in the early 1990s and have remained relatively unchanged since 1992. The baseline scenario reflects the preferred methodology for projecting commercial service operations through 2021.

	WST	BID
2002	7,264	7,546
2003	5,642	6,305
2004	4,628	5,231
2005	5,041	5,793

Figure 640-03(20) Historic Commercial Service Operations at Block Island and Westerly Airports

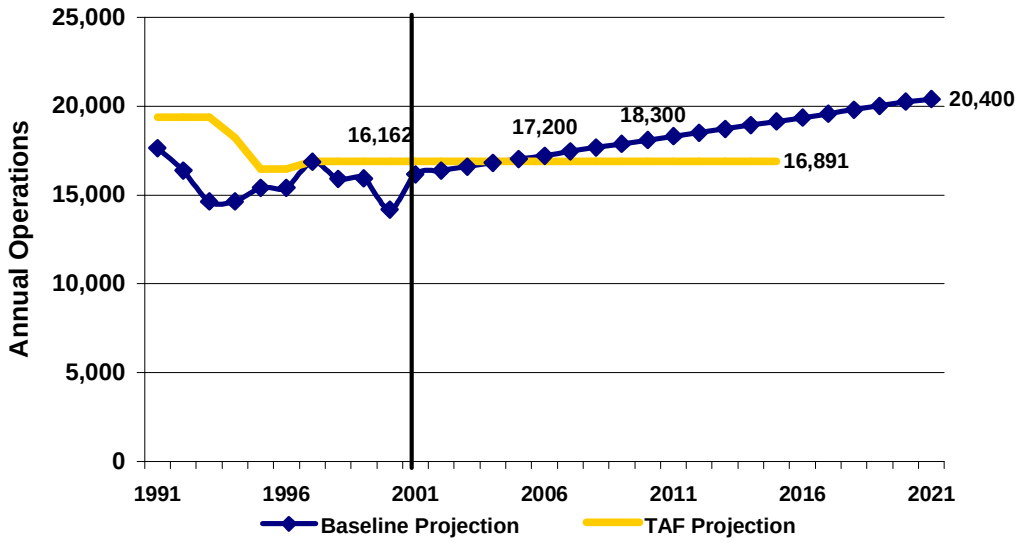


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Westerly	9,591	8,545	7,104	6,500	6,815	7,334	8,356	7,803	7,416	7,539	6,815	8,081
Block Island	10,248	9,101	9,282	8,126	7,809	8,075	7,056	9,060	8,489	8,390	7,367	8,081

Sources: FAA Terminal Area Forecast; Landmark Aviation Services

Figure 640-03(21) presents projected commercial service operations for Westerly and Block Island under the baseline forecast scenario, or high growth scenario, versus a TAF projection, or low growth scenario. The baseline scenario applies a market share methodology using each airport's share of commercial service operations in New England, as projected by the FAA in the *Terminal Area Forecasts*. Based on a decreasing share of New England's commercial operations over the last decade, it is projected that this trend will continue. Using this approach, 20,400 commercial service operations are projected to occur at Block Island and Westerly combined by 2021, up from 16,200 annual operations in 2001. The FAA TAF projects no growth in commercial service operations at Block Island and Westerly over there forecast period (2000-2015).

Figure 640-03(21) Projection of Commercial Service Operations at Block Island and Westerly Airports



Source: Wilbur Smith Associates

03-01-06 Military Activity Projections

In 2001, military operations occurred at two public use airports in Rhode Island, namely T.F. Green and Quonset. Military activity varies with the political climate and variations in government funding. It is anticipated that the 2001 level of military operations will remain constant throughout the planning period at both airports.

03-01-07 Airport User Needs and Enhanced Growth Projections

Baseline projections of based aircraft, general aviation operations, and commercial service activity for the Rhode Island Aviation System Plan (ASP) were presented earlier in this chapter. The projections were based on a "business as usual" scenario. The lack of even average quality facilities or services at the general aviation airports has depressed the growth of general aviation activity in Rhode Island. This chapter presents an analysis of the services and facilities needed to realize these higher rates of future demand. Facilities and services needing improvement at each Rhode Island general aviation airport were identified through an extensive surveying effort of Rhode Island airport users.

It is assumed that if the state's airports are improved, aviation demand at Rhode Island's general aviation airports will behave more like the aviation demand at general aviation airports in the rest of the U.S. There is a positive correlation between factors such as U.S. population and employment and U.S. general aviation demand. In Rhode Island, however, this correlation has been inversely related. While population and employment in the State have increased over the last 10 years, reported general aviation demand has decreased. Rhode Island's inability to record positive growth in general aviation demand could be linked to the State's condition of the general aviation airports. This chapter explores growth potential that may result from changed conditions in the State and at the airports.

A. User Facility and Service Enhancements

Rhode Island's general aviation activity has been artificially suppressed by the lack of adequate facilities and services at Rhode Island's general aviation airports that have not kept pace with those provided at competing airports in neighboring states. One action that must be taken to stimulate Rhode Island's general aviation demand is to significantly upgrade each airport's facilities and services. Out of the following list, survey respondents were asked to indicate the facilities that needed to be provided or upgraded at the Rhode Island airport from which they fly or base an aircraft. Respondents were asked to use a scale of 1-5, with 1 being the most important, to reflect the relative need for each facility. Facilities and services ranked by the survey process included the following:

- Full Service Fixed Base Operator (FBO)
- Fuel (100LL)
- Fuel (JET A)
- Aircraft Maintenance
- Terminal Facilities/Pilot Lounge
- Restaurant
- Ground Transportation (on-site rental car)
- Ground Transportation (courtesy car)
- Additional Runway Length
- Additional Runway Width
- Precision/Instrument Approach
- Parallel Taxiway
- Paved Taxiway
- Weather Reporting
- Hangars
- Paved Tiedowns
- Additional Auto Parking
- Increased Security
- Lighting Requirements
- Other

Additionally, respondents were asked to specify the total runway length and width requirement they would like to see at each airport. They were also asked to specify lighting and instrumentation requirements, as well as any other facilities that they would like to see at a

particular airport. In each survey, the respondents were asked: "If the improvements they noted were made, would you increase the number of annual operations that you conduct at the specified airport?" If an increase was noted, the survey respondent was subsequently asked how many additional operations would be made annually.

The surveys also asked respondents to identify the facility needs and upgrades at the Rhode Island airports other than the one that they based their aircraft at, typically fly out of, or completed their transient pilot survey at. Respondents were asked that if their recommended upgrades were made at these airports, how many additional operations each year would they perform at each respective airport.

The results of the surveys are presented, on an airport-by-airport basis, in the following section. The top facilities noted by survey respondents are ranked by the most popular responses. Additional comments regarding Rhode Island airports are noted as well.

1) Block Island

From the three survey efforts, 71 pilots provided information on service and facility upgrades that they would like to see at Block Island. The top facility and service requests at Block Island obtained from the survey results are as follows:

Additional Runway Length: The top response by pilots for upgraded facilities was a runway extension at Block Island. Runway length requirements ranged from 3,000 to 3,500 feet, up from the current runway length of 2,501 feet.
Terminal Facilities/Pilot Lounge: Many of the airport users indicated the need for a new terminal building and pilot lounge.
Fuel (100LL): While the pilots with aircraft based at Block Island realized the environmental constraints to providing fuel at the airport, many transient pilots noted that it would be beneficial to have 100LL fuel offered at Block Island.
Paved Tiedowns: The lack of paved tiedowns to park airplanes at Block Island was also noted as a hindrance to additional operations at the airport.
Additional Aircraft Parking: Many survey respondents noted that they do not necessarily need paved tiedowns at Block Island. Respondents generally noted that they would like to see additional aircraft parking (paved or unpaved) at the airport.
Precision Approach/ILS: A number of respondents noted that they would like Block Island to have a precision approach, such as an ILS.
Parallel Taxiway: Several pilots also noted their desire for a parallel taxiway at Block Island.

Other facility and service improvements noted by Block Island survey respondents included a crosswind runway, courtesy car services, a "fair" resident tiedown charge, and the elimination of landing fees. Based aircraft owners noted that hangars would also be a beneficial addition at Block Island. According to the surveying effort, if the improvements listed above were made at Block Island, the respondents alone would make approximately 1,600 additional annual operations at the airport.

2) Robert F. Wood Airpark (Newport)

The top facility upgrades noted by pilots through the survey effort at Robert F. Wood Airpark are listed below. Over 80 survey respondents noted some facility or service changes they would like to see implemented at Robert F. Wood Airpark.

Hangars: Nearly every pilot with an aircraft based at Robert F. Wood Airpark noted that additional hangars are badly needed at the airport. One pilot that currently bases their

plane in Massachusetts noted that while they would like to base their aircraft at Robert F. Wood Airpark, no hangars were available, or even in existence.
Terminal Facilities/Pilot Lounge: Both based pilots and transient pilots noted that a new or upgraded terminal building and pilot lounge is desperately needed at the airport. One pilot noted that the airport's terminal should match the reputation of the area.
Restaurant: Mainly transient pilots noted that they would like to see a restaurant located at the airport.
Full Service FBO. A full service FBO was also indicated as an important improvement at Robert F. Wood Airpark. A few respondents to the surveys noted that a good, dedicated flight instructor and aircraft rental source are needed.
Courtesy Car: Pilots noted that it would be nice to have a courtesy car at the airport and/or shuttle service to downtown Newport.
Precision/Instrument Approach: A precision instrument approach was noted as an important facility improvement for the airport. Many pilots indicated that it would be useful to have a GPS or ILS approach for Runway 4/22. It was also indicated that a VASI on Runway 16/34 would be useful.
Additional Runway Length: Pilots also indicated the relative need for a runway extension at Robert F. Wood Airpark, namely on Runway 4/22. The desired runway length noted by pilots ranged from 4,000 to 5,000 feet.
Parallel Taxiway: Several pilots noted the desire for a full parallel taxiway for Runway 16-34.

Other facility and service improvements at Robert F. Wood Airpark noted by pilots participating in the surveying effort included aircraft maintenance, tiedown area lighting, automatic access to the ramp for autos, and having an attendant on the field later than 5pm. If improvements were made to the airport, the survey respondents noted that would conduct approximately 4,100 more operations at Robert F. Wood Airpark annually.

3) North Central

Approximately 118 pilots using North Central responded to the survey. The top facility and service improvements at North Central noted in all survey results are as follows:

Restaurant: Pilots overwhelmingly noted that a restaurant at North Central would be a large asset to the airport.
Hangars: Both pilots with aircraft based at North Central and transient pilots indicated that hangars should be constructed at the airport. One pilot suggested that RIAC improve or replace the large aircraft storage hangar and build more T-hangars. Another pilot noted that it would be useful if North Central had hangar space for overnight rental by business aircraft users.
Courtesy Car: Nearly all of the pilots that filled out the Transient Pilot Survey at North Central noted the need for a courtesy car. One transient pilot noted that, although North Central is most convenient to their office, they often fly into Norwood, Massachusetts because their arrival is typically between 10 and 11 pm, and Norwood offers rental cars and a courtesy car.
Precision/Instrument Approach: Both pilots with aircraft based at North Central and transient pilots noted the desire to have a precision approach to the airport. Many pilots noted that an ILS would be most beneficial. One pilot noted that an ILS to Runway 5 would make it safer to land at the airport and would increase airport utility under poor weather conditions. Pilots also indicated that VASIs on Runway 5 would be helpful.
Full Service FBO: Several pilots noted that they would like to have a full service FBO at North Central.
Terminal Facilities/ Pilot Lounge: Numerous pilots indicated the desire for an improved terminal building. Comments included that the current terminal is an "embarrassment visually" and that the terminal should be "presentable" and "more inviting".

Aircraft Maintenance: Pilots with based aircraft at North Central and transient pilots noted that it would be beneficial to have aircraft maintenance offered at the airport

Other facility upgrades noted on the surveys included a full parallel taxiway for Runway 15/33, repaving of the ramp and Runway 5-23, improved apron and tiedown area lighting, and the addition of an air traffic control tower. Survey respondents also pointed out that the Unicom frequency (122.7) for North Central should be changed because it is too congested. It was also noted that the airport should lower fuel prices to compete with Massachusetts's airports. Several pilots indicated that skydiving operations at the airport pose safety hazards to other pilots. If RIAC addressed these noted facility and service needs, the respondents indicated that they would fly 3,800 additional operations at North Central annually.

4) Quonset

The top facility and service upgrades and improvements for Quonset as noted in all surveys are listed below. The surveys were completed by 55 pilots either living in Rhode Island or visiting the airport from out of state.

Hangars: Pilots noted in the surveys that additional hangars are the most needed facility upgrade at Quonset. One pilot noted that if Hangar 1 could be repaired for less than the cost of tearing it down, it could provide space for many aircraft and businesses.
Aircraft Maintenance: Many pilots noted the need for a full time aircraft mechanic.
Full Service FBO: Pilots with aircraft based at Quonset noted that FBO services are needed. One pilot indicated that a modern but simple FBO would be a big asset at the airport.
Terminal Facilities/Pilot Lounge: Many transient pilots noted that the terminal needs a face-lift and a nicer pilot lounge.
Restaurant: Transient pilots noted the importance of a full-service restaurant at the airport.
Ground Transportation: Many transient pilots noted the need for ground transportation services at the airport. Pilots would like to see either a courtesy car and/or rental car capabilities at Quonset.
Increased Security: Several pilots noted the desire for increased security at Quonset.

Other facility upgrades noted by pilots included repaving the ramp, runways, and taxiways; a full parallel taxiway for Runway 5/23; visual NAVAIDS for Runway 5/23; 24-hour fuel availability; and the removal of abandoned buildings in front of the terminal (since completed). Pilots also noted that they would like to see the museum cleaned up and more courtesy from the tower. Several pilots noted that if facilities were upgraded, Quonset could complement T.F. Green, providing a better place for general aviation activity. Other pilots would like to see a new terminal built at Quonset for international commercial flights. Others indicated the desire to move cargo operations (FedEx, UPS) from T.F. Green to Quonset. According to the survey results, an additional 3,000 operations would be made at Quonset each year if these facility and service needs were addressed by RIAC.

5) T.F. Green

Many of the State's pilots either base aircraft at or regularly fly out of T.F. Green. Although specific facility recommendations are not going to be made in the system plan for T.F. Green, pilots noted facility/service improvements for this airport through the survey effort. Sixty-six pilots completed and returned the surveys. The top facility need indicated through the surveys was additional hangars for general aviation aircraft. Other facility needs noted included additional tiedowns, especially for temporary aircraft parking, and a taxiway extension for Runway 5/23. Respondents also noted that a full

service FBO (in addition to NorthStar) would be beneficial. Many respondents also thought a runway extension at T.F. Green for Runway 5/23 to accommodate more of the commercial flights would be appropriate. Other pilots noted that either lengthening Runway 16/34 or adding an overrun would help make the runway safer. If the improvements noted in the survey were made to T.F. Green, the survey respondents indicated that they would fly an additional 4,300 operations at T.F. Green each year.

6) Westerly

Through the surveying effort, over 50 pilots that use Westerly Airport recognized needed facility upgrades. The top recommendations are listed below.

Restaurant: Survey respondents overwhelmingly indicated that a restaurant was needed at Westerly. One pilot said that RIAC should invest in preparing the available space at the terminal for a restaurant in order to make it more attractive to a prospective operator. Another pilot noted that coffee and vending machines should be offered at the airport.
Ground Transportation: Both transient pilots and based pilots noted the need for ground transportation. Since the airport serves a vacation area and the Foxwoods casino, pilots noted that rental car operation might be useful. Many pilots also stated that a courtesy car would be beneficial.
Precision/Instrument Approach: Several pilots noted that they would like to have a precision/instrument approach to Westerly. An ILS, GPS, and NDB were all mentioned as suggested approaches.
Full Service FBO: Many pilots with aircraft based at Westerly noted that they would like to see a full service FBO at the airport.
Lighting: Pilots indicated that the runway approach lighting at Westerly needs to be updated. Several pilots noted that they would like to see VASIs on all the runways. Other pilots noted that the current beacon is poor, and would like to see it replaced with one that can be seen better at night.
Fuel (100LL): Pilots with aircraft based at Westerly noted the relative need for 100LL fuel at the airport.

Many survey respondents noted that the recent improvements at Westerly have been appreciated. Several pilots indicated that an active, attended Unicom response system is also needed at the airport. The pilots noted in the survey, that if these suggested facility and service improvements were implemented, they would fly approximately 1,600 additional operations at Westerly each year.

B. Statewide Summary

Combined, 254 surveys were completed and returned. Figure 640-04(22) presents the top facility and service needs noted by pilots in the surveys. According to the results of the three surveys (Aircraft Owner Survey, Resident Pilot Survey, Transient Pilot Survey), an additional 18,000 annual operations would be generated by these users alone if the facilities and services noted for each airport were implemented or upgraded. However, it should be noted that it might not be feasible to provide all of the facilities and services desired by the airport users. Environmental concerns, lack of community support, insufficient funds, and statewide need are just a few reasons why some of the facility upgrades may not be practical. Recommendations and prioritization for the facility and service needs of the Rhode Island airport system will be analyzed in subsequent chapters of the ASP.

Figure 640-03 (22) Summary of Survey Results

	Top Facility/Service User Needs					
Airport	**1**	**2**	**3**	**4**	**5**	**6**
Block Island	Additional Runway Length	Terminal/ Pilot Lounge	Fuel (100LL)	Paved Tiedowns	Additional Aircraft Parking	Precision Approach/ ILS
Robert F. Wood Airpark (Newport)	Hangars	Terminal/ Pilot Lounge	Restaurant	Full Service FBO	Courtesy Car	Precision/ Instrument Approach
North Central	Restaurant	Hangars	Courtesy Car	Precision/ Instrument Approach	Full Service FBO	Terminal/ Pilot Lounge
Quonset	Hangars	Aircraft Maintenance	Full Service FBO	Terminal/ Pilot Lounge	Restaurant	Ground Transportation
Westerly	Restaurant	Ground Transportation	Precision/ Instrument Approach	Full Service FBO	Lighting	Fuel (100LL)

Source: Rhode Island Airport Surveys.

In addition to the individual airport facility needs, many of Rhode Island's airport users also made comments regarding the overall condition and operations of Rhode Island's airports. Several pilots noted that Rhode Island must repeal the sales tax on aircraft and remove the tax on fuel in order to be more competitive, and in January 2005 the State was successful in repealing the sales tax. Many pilots emphasized the need for hangars in the entire State. Other pilots noted the need for professional, full service FBOs at all Rhode Island airports, including flight schools, aircraft rental, and fuel. Several airport users suggested that RIAC look to airports in other states as examples of "good" general aviation airports. While several pilots noted that they were happy with the condition of Rhode Island's airports, many pilots indicated the overall need for facility upgrades and improvements at all of the State's airports.

Figure 640-03(23) Summary of Enhanced Growth Projections at General Aviation Airports in Rhode Island

		Demand Projections					Enhanced Growth Projections				
Airport	**Year**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**
Block Island											
	2001	7	9,674	8,081	17,755	10,947	7	9,674	8,081	17,755	10,947
	2006	7	10,000	8,600	18,600	11,500	8	11,300	9,200	20,500	13,300
	2011	7	10,800	9,100	19,900	12,100	9	12,900	10,500	23,400	16,200
	2021	8	12,300	10,200	22,500	14,300	12	16,800	13,500	30,300	24,000
Robert F. Wood Airpark (Newport)											
	2001	26	12,485	0	12,485	0	26	12,485	0	12,485	0
	2006	26	12,800	0	12,800	0	28	14,700	0	14,700	0
	2011	27	13,800	0	13,800	0	30	15,900	0	15,900	0
	2021	28	15,700	0	15,700	0	36	18,600	0	18,600	0
North Central											
	2001	115	65,000	0	65,000	0	115	65,000	0	65,000	0
	2006	115	66,900	0	66,900	0	130	78,700	0	78,700	0
	2011	118	72,000	0	72,000	0	147	89,100	0	89,100	0
	2021	123	81,700	0	81,700	0	188	114,000	0	114,000	0
Quonset											
	2001	19	7,927	0	14,879*	0	19	7,927	0	14,927*	0
	2006	19	8,200	0	15,200*	0	21	9,900	0	16,900*	0
	2011	20	8,800	0	15,800*	0	23	10,900	0	17,900*	0
	2021	20	10,000	0	17,000*	0	28	13,100	0	20,100*	0
Westerly											
	2001	84	6,585	8,081	14,666	9,534	84	6,585	8,081	14,666	9,534
	2006	84	6,800	8,600	15,400	9,900	92	12,200	9,200	21,400	11,600
	2011	86	7,300	9,100	16,400	11,000	101	13,400	10,500	23,900	14,100
	2021	90	8,300	10,200	18,500	13,600	122	16,200	13,500	29,700	20,900
TOTAL											
	2001	251	101,671	16,162	124,785*	20,481	251	101,671	16,162	117,833*	20,481
	2006	251	104,700	17,200	128,900*	21,400	279	126,800	18,400	145,200*	24,900
	2011	258	112,700	18,200	137,900*	23,100	310	142,200	21,000	163,200*	30,300
	2021	269	128,000	20,400	155,400*	27,900	386	178,700	27,000	205,700*	44,900

*Includes military operations
Commercial operations include operations by all-cargo carrier as well as passenger carriers. Total passenger projections were halved in order to develop enplanement projections for this Study.
Source: Wilbur Smith Associates

03-02 T.F. Green Projections

There are two scenarios considered in the analysis.

- Base Case corresponding to expected growth with no runway extension. It assumes
  - Additional service and a steady growth in passenger and operations activity in response to demand.
  - The competitive and cooperative relationship between T.F. Green (PVD), Manchester (MHT) and Logan (BOS) will not change.
- Incremental Case which reflects the impact of a longer runway.
  - Is an unconstrained forecast and it assumes there are no physical or facility limits on the number of passengers or aircraft that could be accommodated at PVD.
  - Considers only selected long-haul markets
  - Includes the same assumptions as the Base Case

The two cases are additive: the Base Case, plus the Incremental case, together reflects the anticipated future passenger and operations activity with the improvements in place.

The forecasts:

- Use a base year of 2004 and extend to 2025.
- Are demand-oriented since they consider the availability of services from PVD, BOS and MHT.
- View the future level of traffic at PVD, MHT and BOS as determined by economic growth, population, incomes and airline industry economics.
- View the distribution of traffic at the three airports as dependent on the availability of air service and relative air fares.
- Do not take into account the likely simulative effect on traffic by new air service at PVD by LCC and therefore reflect a measure of conservative approach to the forecasts.
- Are based on realistic assumptions and methodologies, particularly in the estimates of the number of new long distance flights that would be enabled by a longer runway.
- Lie within the middle part of the range of possible activity.
- Cover the following elements of activity – scheduled passenger service, charter passenger traffic, scheduled operations by destination, type of aircraft used for scheduled operations, charter operations, GA operations, military operations, GA based aircraft, amount of air freight, amount of air mail and all air cargo operations.
- Assume that a longer runway will not materially affect the short-haul services and traffic volume.
- Assume the fundamental relationship and rankings of the three airports will not change.
- Assume BOS will remain the leading gateway for the region both domestically and internationally and PVD and MHT will remain as alternatives to BOS.
- Assume economic growth will continue but at lower rate.
- Assume fuel prices will remain volatile, but will increase through the forecasting period.
- Assume airline costs for labor will rise at nominal rates.
- Assume airline and aircraft technical efficiencies will continue to improve, but at diminishing rates.
- Assume low cost carriers (LCC) will grow rapidly at BOS and reduce the price advantage held by PVD the past decade.
- Assume legacy and LCC carriers will continue to increase service at PVD, however new route activity will be slower than when Southwest entered in 1996.
- Assume growing congestion and delays at other airports, particularly BOS will not be a significant factor in the growth of PVD.
- Assume no policy measures will be administered to artificially shift passengers between BOS, MHT and PVD.
- Assume PVD air fares will rise.

- Assume by 2020, the airline industry will become sufficiently profitable to cover its capital costs.
- Assume some airlines and types of aircraft can not operate long haul domestic flights from the current runways. Some airlines may use the existing runway but incur a payload to do so.

A five-step process was used to determine the routes the airlines might serve. New service development would be a long and gradual process, involving a slow but steady addition of new flights. The new service assumptions used in the Base Case and Incremental Case are noted in Figure 640-03 (24) below.

Figure 640-03 (24) New Air Service Assumptions at PVD

Destination	Date	Case	Rationale
Pittsburgh	2007	Base	Anticipated new destination by Southwest Airline.
Raleigh – Durham	2012	Base	Recently discontinued service by American Eagle suggests the route has long-term prospects.
West Palm Beach	2009	Base	The most conspicuous gap in the Florida market.
Houston	2014	Base	Would restore service that previously operated in 2000.
Los Angeles, San Diego, San Jose, San Francisco, Seattle	2012	Incr.	The most current popular destinations from PVD, either with or without non-stop service.
Caribbean, Mexico (Charter)	2012	Incr.	The most current popular destinations from PVD, either with or without non-stop service.
London (Stansted)	2014	Incr.	The most current popular destinations from PVD, either with or without non-stop service.

03-02-01 Methodology and Assumptions Overview

The forecasts follow the methodologies specified by the FAA for forecasting air passenger demand at an airport.[1] The Base Case considers future activity with no runway extension. This forecast is directly comparable to the FAA Terminal Area Forecast (TAF) and the forecasts of the New England Region Aviation System Plan (NERASP). The Incremental Case portrays the additional air passenger resulting from a longer runway. The Base Case and Incremental Case are additive; their sum represents total air passenger at PVD with an extended runway completed by 2012. The difference between the two cases defines the changes air passenger traffic and operations that would result from a lengthened runway.

The forecasts for future air passenger traffic levels are determined by economic conditions, the growth of RI and the Boston-Manchester-Providence region, and the supply conditions in the airline industry. However, the location and regional dynamics of PVD introduce certain complexities. The BOS-MHT-PVD airports serve all New England. The catchment area of each airport overlap and many passengers are largely indifferent to which airport they fly from. Small changes in fares or service can cause large shifts in airport choice. This interdependence calls for a regional approach to forecasting, in which inter-airport price and service differentials are important determinants of future air passenger traffic at PVD. The forecasting models[2] therefore explicitly allow market conditions at BOS, and to a lesser extent MHT, to play a direct role in determining air passenger traffic and operations at PVD. These components of total airport activity have the largest bearing on the facility requirements at PVD.

The process begins with an analysis of the factors influencing the aviation industry up to the 2025 horizon. The analysis considers national and international trends and how they affect the air

[1] Source: FAA "*Forecasting Aviation Activity by Airport*" July 2001 and "*Revision to Guidance on Review and Approval of Aviation Forecasts*" December 2004.

[2] See "*Figure 2-1, Technical Memorandum #2 Air Passenger and Operations Forecast*", Figure 2-1 depicts a schematic view of the forecasting methodology, for enplaned - deplaned passengers and passenger air traffic operations

service at PVD and its competitors. Of particular importance are the factors influencing fares at BOS-MHT-PVD. Fares reflect key airline industry issues and trends, such as the relationship between low cost and legacy carriers, industry profitability and the on going restructuring. It assumes the relative ranking among the three airports will not change. The forecast does not take in to account the likely stimulating effect of new service at PVD by LCC, and therefore reflects a measure of conservative approach to the forecasts. This approach contradicts wide experience in New England and elsewhere. However, it reflects an emphasis on meeting current market demands, rather than creating an altogether new air passenger traffic through market stimulation, or dramatic and as-yet unforeseen changes in the airline industry. It is noted that the pessimistic assumptions on the cost and price of air travel generate conservative forecasts of future air passenger traffic at PVD for his analysis.

03-02-02 Passenger Forecast Methodology

The Base Case and Incremental Case are summarized below:

- Base Case – An extrapolation of the status-quo, with modest development of new short-haul services, and no runway extension.
- Incremental Case – Currently lost or unmet passenger demand that could be served with a runway extension in place. This air passenger traffic currently uses other airports in the region. It assumes:
    - *Long Haul Domestic Service* – runway extension enables non-stop service to West coast.
    - *Charter Service* – would provide non-stop service to Mexico and Caribbean destinations.
    - *Trans-Atlantic Scheduled Service* – LCC initiates non-stop PVD – London (Stansted) flights.

03-02-03 Operations Forecast Methodology

The passenger forecasts could correspond to literally any fleet mix, seat capacity or number of flights. Forecasts of operations and fleet mix typically rely on some set of external assumptions, such as assuming an airport-wide change in load factor or average aircraft seat capacity. Such approximations can not produce acceptable forecasts for the purpose of evaluating the consequences of a longer runway; a more detailed projection of fleet mixes is necessary. To do this a set of 12 assumptions[3] or rules was applied to the algorithm.

03-02-04 Non-Quantifiable Forecast Factors

- *Impact of Unexpected Passenger Demand* – There is unanticipated consumer response to new airline service often well beyond the scope of traditional forecast analysis. These issues are not incorporated into the forecasts. Rather, air passenger traffic gains in the Incremental Case reflect solely the redistribution of a portion of the existing demand from other regional airports to PVD. This reflects the emphasis on investments to meet existing needs, rather than to stimulate large scale air passenger traffic growth.
- *Impact of Competitive Responses* – As airlines fight to maintain their market share and defend their hubs and dominant regions, the competitive response to other airline service has often been intense. A long list of these competitive actions can be described. But the key is that all of these actions were triggered only by the announcement of a competitor's service.
    - The implication for PVD is to indicate that traditional econometric and statistical forecasts are only one element of the long-term outlook for passenger volumes and the variety of flights that will ultimately be offered.
    - The relatively limited new services from PVD that are called for in the Base and Incremental cases could precipitate substantially more activity. The resulting air

[3] See "*Technical Memorandum #2 Air Passenger and Operations Forecast*", Section 2.3 Operations Forecast Methodology for a more detailed description of the assumptions.

passenger traffic volumes could exceed those of the Incremental Case, but the likelihood and amount of increase is not possible to predict.

- *Impact of Additional Non-Quantifiable Flights for PVD* – Beyond the fully supported forecast for new daily long-haul domestic, international and charter flights once the runway extension has been completed, it is suggested that there could be at least three more daily domestic fights added to the airport's schedule that are harder to quantify for forecast purposes.
    - It is expected that at least two of these flights could be added as a competitive response. This assumption is supported by the level of competition seen in the domestic airline industry, as well as the historical airline schedule data.
    - One additional flight will likely result from the unexpected passenger demand.

03-02-05 Air Cargo Forecast Methodology

Integrated Air Freight Carriers – The small size of the feeder aircraft, such as those servicing Nantucket and Martha's Vineyard from PVD, are often exempt from submitting comprehensive cargo data to the U.S. DOT. These shortcomings limit the use of available data for cargo traffic forecasting.

- The cargo traffic processed by the integrated cargo carriers at PVD depends not only on the volumes generated by the RI market, but also on how the operators design their networks. Management teams at the corporate headquarters make decisions to consolidate spokes or establish new ones or to create regional mini-hubs to serve volume markets. These decisions are made to minimize costs and optimize customer service. They have no immediately clear relationship to volumes and can cause sudden and substantial changes in the PVD cargo related traffic.
- The rapid shift of air mail from passenger airlines to integrated cargo operators is fully in evidence at PVD. FedEx and UPS carried 99.9 percent of the Airport's air mail in 2004.

Belly Freight on Scheduled Air Carrier Aircraft – The passenger aircraft operations forecast, with or without a runway extension, call for PVD services to remain overwhelmingly short-haul and operated by narrow-body aircraft. This implies that belly cargo revenues will remain of secondary importance at PVD.

- The quantity of belly cargo will depend on the belly cargo capacity, rather then on demand factors.
- PVD traffic history illustrates that air freight is not a primary product among the passenger airlines. From 1990 to 2004 volumes grew by only 1.8 percent. Total U.S. domestic cargo traffic increased by 159.4 percent during the same period.
- Quantities per flight at PVD are very low, usually less than 400 pounds. Well below the capacity of most narrow-body aircraft. Deficient ground facilities could contribute to limited belly cargo activity.
- The belly cargo forecasts are based on a practical capacity for aircraft that could or might serve PVD.

03-02-06 General Aviation and Military Methodology

General Aviation includes a wide range of activities from recreational, to air ambulances, to corporate.

- Except for North Central State Airport, operations at most state airports have remained static.
- The January 2005 repeal of the GA sales and revenue tax will stimulate development of this sector.
- The growing passenger and air freight traffic at PVD will encourage private and corporate aircraft to relocate to the five other GA airports in the state.
- The planned development of Quonset State Airport as a diversified industrial park and GA facility will capture most of the RI GA growth.
- These factors suggest that GA activity at PVD will continue its slow decline.

Military aviation activity at PVD is minimal since the shift of the military role to Quonset State Airport. That airport will continue to expand to service the military mission in RI.

03-02-07 Summary of Forecasts

This section provides a summary of the passenger, operations and air cargo forecasts. It reflects the base year, 2004, and projected forecasts for 2010, 2012, 2015, 2020, and 2025.[4]

A. Passenger Forecasts

By 2020, the additional services represented by the Incremental Case, will represent 8.8 percent of PVD passenger traffic.

- The assumed non-stop transcontinental flights alone would account for 6.6 percent of PVD passenger traffic.
- Some of the passengers already use PVD but they would shift from indirect service to non-stop service.
- Other passengers would be attracted from BOS and MHT.
- Another component, representing altogether new air passenger traffic, not served out of any airport, would be encouraged to travel by the additional services. This component is, by assumption, zero.

The Base Case calls for maturation of passenger traffic; between 2005 and 2010, passenger traffic is expected to grow at 2.9 percent yearly. In the 1995 – 2000 interval passenger traffic expanded by 20.1 percent yearly, reflecting the immediate consequences of Southwest Airline entry in 1996. Figure 640-03 (25) lists the historic enplanements from 1990 through 2004 and Figure 640-03 (26) summarizes the forecast of passenger traffic for the Base and Incremental Cases.

Figure 640-03 (25) Historic PVD Enplanements 1990 - 2004[5]

Year	Enplanements
1990	1,186,162
1991	1,166,104
1992	1,124,242
1993	1,186,513
1994	1,230,268
1995	1,084,997
1996	1,241,955
1997	2,035,368
1998	2,307,655
1999	2,570,398
2000	2,715,469
2001	2,765,197
2002	2,696,787
2003	2,588,136
2004	2,754,593

[4] Source: "*Technical Memorandum #2 Air Passenger and Operations Forecast*", See Appendix M for details of Operations and Fleet Mix forecasts by airline, type of aircraft and destination through 2025. See Appendix A - H for a summary of forecasts through 2025.

Figure 640-03 (26) Summary of PVD Enplaned – Deplaned Passenger Forecasts 2006 – 2025[5]

Base Case				Incremental Case				Total
Year	Domestic	Other[6]	Total	Domestic	Charter	London Schedule	Total	Base + Incremental
2004	5,463,610	45,576	5,509,186	-	-	-	-	5,509,186
2010	6,509,109	59,855	6,568,964	-	-	-	-	6,568,964
2012	6,928,034	63,957	6,991,992	306,550	41,480	-	348,030	7,340,022
2015	7,643,919	70,499	7,714,419	568,047	124,100	40,046	732,193	8,446,611
2020	8,907,717	83,180	8,990,897	646,504	124,440	93,696	864,640	9,855,537
2025	10,344,804	98,266	10,443,070	732,287	124,100	93,440	949,827	11,392,897

B. Operations Forecasts

The operations forecasts reflect the air traffic growth expected from the passenger forecasts. Through changes in the fleet mix and the number of flights, the operations accommodate the growing air passenger traffic. The Incremental Case assumes that frequencies for the new long-haul services will be limited by the market. Los Angeles, San Francisco, San Diego and Las Vegas would receive a maximum of two flights daily. Seattle, San Jose, London, and the Caribbean charter flight would operate on a daily frequency.

The *Base Case Operations Forecasts* assumes:

- Narrow-body aircraft gradually increasing in size. In 2004 the average seat capacity was 137 seats and it is expected to grow to 143 seats by 2019.
- Wide-body aircraft, particularly the B-767-300 or its later body counter parts, operate on some high density domestic routes.
- No type of aircraft materially different from those of 2004 would serve PVD.
- Does not anticipate regular service by aircraft such as the A-380, B-747 or B-777.

The *Incremental Case Operations Forecasts* assumes:

- Narrow-body aircraft of 120- 190 seat capacity.
- The proposed London route would be operated by a B-737-900 extended range aircraft or equal.
- Southern Caribbean charter flights would use aircraft similar to the B-757-200, although wide-body equipment such as the B-747 or B-777 might see intermittent use.
- All trans-continental flights would be operated by a single-aisle A-319, A-320, B-737 and B-757.

The *GA and Military Operations Forecast* assumes:

- GA and Military operations will be static for PVD.
- The forecasts call for both sectors to remain at 2004 levels.
- North Central and Quonset are predicted to assume the PVD corporate and GA growth.
- Military activity will remain limited and intermittent.

Figure 640-03 (27) summarizes the historic operations, and Figure 640-03 (28) summarizes the Base Case and Incremental Case.

[5] Source: VHB EIS Technical Memorandum No.3 Sept 2005

[6] " Other" includes Domestic Charter, International Scheduled and Charter services

Figure 640-03 (27) Historic PVD Operations 1990 - 2004[5]

Year	Total Operations
1990	60,135
1991	59,828
1992	66,564
1993	72,228
1994	65,631
1995	63,447
1996	61,738
1997	84,644
1998	87,159
1999	96,481
2000	100,597
2001	100,606
2002	96,595
2003	88,260
2004	84,721

Figure 640-03 (28) PVD Operations Forecast[7]

Base Case Commercial				Incremental Case Commercial				Total Base + Incremental		
Year	Domestic	Other [8]	Total	Domestic	Charter	London Schedule.	Total	Total Comm.	GA + Military	Total Ops.
2004	80,565	4,156	84,721	-	-	-	-	84,721	36,707	121,428
2010	90,416	4,900	95,316	-	-	-	-	95,316	36,707	132,023
2012	95,964	5,182	101,146	2,940	122	0	3,062	104,208	36,707	140,915
2015	101,470	5,647	107,117	6,570	730	313	7,613	114,730	36,707	151,437
2020	109,905	6,550	116,455	7,320	732	732	8,784	125,739	36,707	161,946
2025	120,763	7,646	128,409	7,300	730	730	8,760	137,769	36,707	173,876

Two key factors that repeatedly create higher levels of service and passengers include:

- An unexpected level of passenger demand in response to the introduction of new low fare service.
- The impact of competitive responses made by airlines following the introduction of new flights by another carrier.

Together, these two factors could have a substantial impact on passenger volumes and flight activities at PVD. With increasing congestion in the New England region, these factors could be compounded to generate substantial levels of new flights activity at PVD, beyond the expectations outlined by the traditional forecasts employed in this analysis.

Cargo Operations

The *Cargo Operations Forecasts* assume:

- The integrated cargo operators (FedEx, DHL, and UPS) will continue to meet most air cargo needs.
- The airlines will continue carrying air freight in otherwise empty belly space.
- The B-767-300 now seeing increasing use at PVD can carry containerized shipments and could offer an expanded cargo product.

[7] The Operations forecast includes Commercial, GA and Military. GA includes local and Itinerant
[8] Other operations include Domestic and International Charter flights and all Cargo

Figure 640-03 (29) summarized air cargo tonnage and operations.

Figure 640-03 (29) Air Cargo Activity

Air Cargo Tons				Cargo Ops.
Year	**Base Case**	**Incremental**	**Total Tons**	**Total Ops.**
2004	19,415	0	19,415	3,138
2010	24,287	0	24,287	3,620
2012	26,310	91	26,401	3,817
2015	29,834	217	30,051	4,140
2020	36,157	240	36,397	4,773
2025	43,896	240	44,138	5,549

03-03 Summary

Figure 640-03(30) presents a summary of both the demand and enhanced growth forecasts for the airports in Rhode Island over the planning period. It is important to note that these projections are not intended to replace forecasts of demand that may be developed as part of individual airport master plans. These projections will be used in the ASPU primarily to evaluate the system's ability to meet the capacity-related system performance measure.

Aviation system plans that were prepared in the 1970s and 1980s, and even to some extent into the 1990s, relied almost exclusively on a capacity-based performance evaluation. In today's aviation environment, it is widely recognized that "good" aviation systems must be multi-faceted, exhibiting characteristics beyond those needed just to satisfy current and future demand levels.

Figure 640-03(30) Summary of Growth Projections in Rhode Island

		Demand Projections					Enhanced Growth Projections				
Airport	**Year**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**
Block Island											
	2001	7	9,674	8,081	17,755	10,947	7	9,674	8,081	17,755	10,947
	2021	8	12,300	10,200	22,500	14,300	12	16,800	13,500	30,300	24,000
Robert F. Wood Airpark (Newport)											
	2001	26	12,485	0	12,485	0	26	12,485	0	12,485	0
	2021	28	15,700	0	15,700	0	36	18,600	0	18,600	0
North Central											
	2001	115	65,000	0	65,000	0	115	65,000	0	65,000	0
	2021	123	81,700	0	81,700	0	188	114,000	0	114,000	0
Quonset											
	2001	19	7,927	0	14,879*	0	19	7,927	0	14,927*	0
	2021	20	10,000	0	17,000*	0	28	13,100	0	20,100*	0
Westerly											
	2001	84	6,585	8,081	14,666	9,534	84	6,585	8,081	14,666	9,534
	2021	90	8,300	10,200	18,500	13,600	122	16,200	13,500	29,700	20,900
TOTAL											
	2001	251	101,671	16,162	124,785*	20,481	251	101,671	16,162	117,833*	20,481
	2021	269	128,000	20,400	155,400*	27,900	386	178,700	27,000	205,700*	44,900
T.F. Green**											
	2004				84,721	5,509,186				121,428	5,509,186
	2020				116,455	8,990,897				161,946	9,855,537

*Includes military operations
** T.F. Green Incremental Case numbers were categorized as Enhanced Growth Projections in this table because the airport would need airfield and other improvements to achieve the forecast
Note: Commercial operations for all airports except T.F. Green include operations by all-cargo carrier as well as passenger carriers. Total operations for T.F. Green include commercial, charter, general aviation, cargo, and military
Total passenger projections were halved in order to develop enplanement projections for this Study.
Source: Wilbur Smith Associates; T.F. Green EIS

640.04 Rhode Island State Airport System Plan Performance Measures

04-01 Airport and System Performance Measures

In conducting airport system planning it is important to have an understanding of the current "condition" of the system before moving forward to future system requirements. It establishes the base measure against which to assess the future performance of the system. This measuring process requires (a) defining the functional roles of each airport and (b) establishing a system of measures by which to quantify performance.

On one hand the assessment process will utilize reasonably well defined aviation parameters, but it must also be understood that quantifying or measuring the individual results can be somewhat subjective. In summary, the assessment provides a general understanding of the airport and system performance.

Each of the six airports in Rhode Island's system has a functional role but they also service various types and levels of demand. As a result, though similar in some regards they can also service their roles differently. As an example; while T.F. Green is the State's only primary commercial service airport, with a focus on scheduled airline service, it also plays a role in meeting general aviation needs. Conversely, while Westerly and Block Island are considered to be primarily GA airports, they also have limited commercial service.

04-01-01 Functional Roles

A number of factors were used to determine the current contribution of each airport to Rhode Island's air transportation and economic needs. First, the airports were categorized according to their functional roles. Then, the planning factors established at the beginning of this planning process were translated into system performance measures for evaluating the performance of each airport and the performance of the overall system. Chapter 640.02, Inventory and Roles, identified and discussed factors that determined each airport's current role and contribution to the system. The following is a brief description of airport roles.

Primary Commercial Air Service (P) airports, such as T.F.Green, are developed to accommodate scheduled commercial airline service. Primary Commercial Service airports have greater than 10,000 passenger enplanements as recorded by the U.S. Department of Transportation (US/DOT). These airports are also receive an FAA AIP entitlement that is based on the enplaned passenger count. They are also capable of supporting cargo, charter and general aviation activities. In terms of GA activity the emphasis is on corporate aircraft operations because they can accommodate the larger GA aircraft.

Commercial Service (CM) airports, such as Westerly and Block Island, are similar to primary commercial service in that they also accommodate scheduled service, but usually with smaller aircraft types and the recorded passenger enplanements are greater than 2500 but less than 10,000. The FAA AIP funding arrangement is also different because the passenger enplanements are less than 10,000. Commercial service airports typically serve general aviation needs as well.

General Aviation (GA) airports, such as, North Central, Quonset, and Newport, support a variety of general aviation activities, such as business/corporate and personal flying, flight training and aviation support activities. They also provide aircraft owners covered (hangar) and uncovered (apron parking) storage. General aviation airports could be as small as Newport that service single and small twin engine aircraft. Or they could be as large as Quonset with a runway that could service large turbine and jet aircraft. These airports also support some special operational activities. That includes such activities as emergency evacuation service, passenger service to more remote or isolated locations, and military operations.

Reliever (R) airport is a special designation. This category of GA airport is planned and developed with the intent to attract general aviation flight activity away from the congested, primary commercial service airports (T.F.Green). They are typically located in close proximity to the primary commercial service airport and are meant to provide the same precision approaches and support systems that are found at the larger airport. They also receive a higher priority when FAA funding is a consideration for general aviation airport development projects. North Central and Quonset have been classified as Relievers.

04-01-02 System Performance Measures

The current functional roles were used to determine how well the airport system is currently performing. The evaluation of the airport system was accomplished using a performance-based approach.

The planning factors, identified in Chapter 640.01, Introduction and Background define the framework for the performance based analysis that is utilized to identify the adequacy and/or shortcomings the airport system. A series of benchmarks under each planning factor was evaluated or graded based on the role of the airport. The planning factor and corresponding performance measure category are shown below.

No.	Planning Factor	Performance Measure
1	Should be readily accessible from the ground.	Ground Accessibility
2	Should be readily accessible from the air.	Air Accessibility
3	Should be safe, efficient, and meets applicable FAA design standards.	Design Standard
4	Should be in compliance with federal, state and local environmental requirements.	Environmental Compliance
5	Should have sufficient capacity to meet both current and projected demand	Airport Capacity
6	Should support the RI economy and be financial self-sufficient.	Economic Incentives
7	Should be compatible with their surrounding environs.	Compatibility Planning

The benchmarks that were identified encompass a variety of quantifiable factors that apply to the fundamental characteristics of the individual system performance measure. For example, in analyzing Air Accessibility a benchmark was established to measure the “Percentage of Airports with a Precision Approach”. This is just one of several quantifiable measures by which the airport system can be evaluated for “Air Accessibility. When incorporated with similar benchmarks, an overall view of the airport system performance can be established. It is also important to note that some benchmarks are action-oriented, while others are more informational in nature. From the analysis completed in this chapter, the ability of all public airports in the system to meet each of the study benchmarks was determined.

04-01-03 System Performance

In assessing the current system performance it was important to determine how each of the airports in the system contributes individually, in order to determine how respective airports may need to be upgraded in the future to achieve better performance from the entire system. These deficiencies are identified in this chapter. Figure 640.04(1) shows how each airport performs under each benchmark, and how the airports combined achieve the system performance.

Future system performance objectives were set that will ultimately serve as the foundation for the final recommendations. Please note that not every deficiency translates directly to a recommendation. For example, while Newport does not meet its Primary Runway Length objective, this plan is not suggesting a runway extension for that airport at this time, although it is possible than the ongoing Master Plan for that airport may consider that option.

It is important to recognize that the T.F. Green Master Plan and Environmental Impact Statement are in progress concurrently with this assessment. As noted in Chapter 640.01, an airport master plan is more tactical and detailed than a system plan, which is, by definition, more strategic and generalized in nature. This system plan has the benefit of having quite detailed information available for T.F. Green. That knowledge has helped to inform this process and this document, even though both are proceeding concurrently. Again, as a reminder, several source documents have been used in this analysis. For more detailed information, please refer to the T.F. Green Master Plan and Environmental Impact Statement and RIAC's General Aviation System Plan dated December 2004.

BENCHMARK	CRITERIA
Ground Accessibility	Ability of Rhode Island's airport to be accessible from the ground
Access Road Functionally Classified	Is the primary access road to the airport functionally classified and therefore eligible for federal funding?
Auto Parking	Does the airport have adequate auto parking as determined by evaluating the number of based aircraft, employees, visitors, and other airport businesses such as rental cars? Different auto parking objectives were established per airport category.
Scheduled Transit Service	Does the primary commercial service airport have regularly scheduled transit service? Commercial service airports should have some level of transit (e.g. Westerly Airport lies within RIPTA's flex service zone.) This benchmark does not apply to the general aviation airports.
On-site ground transportation	Does the airport provide access to rental or courtesy cars? Access to off-site services is not considered.
Air Accessibility	Ability of Rhode Island's airport to be accessible from the air
Precision Approach	Does the airport (commercial and reliever only) have a precision approach system which provides electronic horizontal and vertical guidance information to aircraft during their approach to and landing at an airport and allows aircraft to locate an airport and land on a specific runway during periods of reduced visibility and/or inclement weather? This benchmark does not apply to Newport Airport which is a general aviation, non-reliever airport.
Non-precision Approach	Does the airport have non-precision approach systems which provide horizontal guidance with relation to a specific runway, but not vertical guidance or glide slope information? This applies to all airports.
On-site Weather Reporting Capabilities	Does the airport have weather reporting equipment that compliments the airport's precision or non-precision approach capabilities and promotes an increased margin of safety during periods of inclement or changing weather?
Primary Runway Length	Does the airport have a runway length adequate to service the current or projected design aircraft?

Crosswind Runway Length	Does the airport need a crosswind runway which, as stated by the FAA in AC 5300-13, is recommended when an airport's primary runway orientation provides less than 95% wind coverage for any aircraft forecasted to use the airport on a regular basis? If so, is the crosswind runway length at least 80% of the primary runway length.
Standards	Ability to meet applicable design standards
Airport Reference Code (ARC)	Are the airport's facilities designed to meet the airport's critical aircraft as determined by the current Master Plan or ALP?
Runway / Taxiway Separation	Do the airport's runway/taxiway separations meet the airport design standard as defined by FAA AC 5300-13 which stipulates the distance needed for two aircraft to pass while one is on the runway and the other on the taxiway with a margin of safety to eliminate the potential for wingtip-to-wingtip collisions?
"Good" Pavement Condition	Is the airport's pavement in a condition, subjectively defined as "good" based on cracking, uniformity, and repairs, in order to prevent major costly reconstruction projects over the long term?
Runway Safety Area (RSA)	Do the airport's runway safety areas meet the design standards as defined in FAA AC 5300-13 which defines it as the surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion of the runway?
Primary Surfaces	Do the airport's primary surfaces meet the design standards as defined in FAA AC 5300-13 which defines it as an area that is longitudinally centered on every airport runway and extends 200 feet beyond the end of that runway with varying widths depending on the runway's type and is clear of all above ground objects?
Runway Protection Zone (undeveloped or airport land)	Do the airport's runway protection zones meet the design standards as in FAA AC 5300-13 which defines it as a trapezoidal shape centered on the extended runway centerline which enhances the protection of people and property on the ground and is ideally achieved through airport ownership of the RPZ and preferably undeveloped and free of any objects?
Runway Object Free Area (ROFA)	Do the airport's runway object free areas meet the design standards as in FAA AC 5300-13 which defines it as a two-dimensional ground area centered on the runway centerline that is clear of all above ground objects unless the object is for the purpose of air navigation or aircraft ground maneuvering?
Unobstructed Approaches	Do the airport's unobstructed approaches meet the airport design standards as defined in FAA AC 5300-13?
Security	Does the airport meet all security requirements per type of airport such as fencing, controlled access, and lighting?
Environmental Compliance	Ability to meet regulatory requirements
Spill Prevention Control Countermeasures (SPCC) Plan	Does the airport have a SPCC plan established which documents how airport operations conform to prevention guidelines under the oil pollution prevention regulation?

Underground Storage Tank(UST) Requirements	Does the airport comply with UST requirements which are defined by USEPA as any underground piping connected to a tank that has at least 10 percent of its combined volume underground?
Wildlife Management Plan	Does the airport have a WMP which complies with guidelines prepared by the US Fish and Wildlife Service including, but not limited to, controlling access by wildlife to aircraft movement areas and operations areas?
Storm Water Pollution Prevention Plan (SWPPP)	Does the airport have a SWPPP and accompanied signed certificate that works to improve water quality by eliminating the threat of potential contaminates from coming in contact with storm water?
Underground Injection Control (UIC) Requirements	Does the airport use Class Five Underground Injection Control wells to discharge industrial wastewater that meets State requirements during installation and operation and prevents the ground and water from being contaminated?
Hazardous Materials Requirements	Does the airport identify and manage hazardous wastes properly to protect airport employees and host communities as well as the environment?
Air Quality: On Airport	Pending
Air Quality: Off Airport	Is vehicular traffic to and from the airport included in conformity for surface transportation plans? Conformity is determined by statewide travel demand modeling and not by air quality testing at the individual airports.
Vegetation Management Plan (VMP)	Does the airport have a VMP which identifies the foliage surrounding a facility and establishes a goal to create a mix of vegetation that will naturally comply with airspace restrictions which will decrease the need for human intervention for maintenance?
Capacity	Ability to provide airside and landside facilities to meet existing and future needs
Runway System Capacity	Does the airport have operations at or below 60% to 80% of its calculated Annual Service Volume which is the estimated number of annual takeoffs and landings an airport can process when there is always an aircraft ready to land or depart?
Covered Aircraft Storage	Does the airport have covered aircraft storage, broadly categorized as either T-hangars or conventional hangars, to accommodate the demand from both based and transient aircraft?
Auto Parking	Does the airport have adequate auto parking as determined by evaluating the number of based aircraft, employees, visitors, and other airport businesses such as rental cars? Different auto parking objectives were established per airport category.
Aircraft Parking	Does the airport have adequate aircraft parking areas for loading and unloading passengers, short-term parking by aircraft utilizing the airport's facilities, and for visiting transient aircraft? Different aircraft parking area demands were established per airport category.

Terminal/Administration Building	Does the airport have adequate terminal/administration building facilities for serving peak hour operations/passengers and providing amenities? Different terminal/administration building objectives were established per airport category.
Economic	Ability to support Rhode Island's economy and airport financial self-sufficiency
Revenues Exceed Operating Expenses (excl. Admin)	Does the airport produce enough operating revenue to cover operating and maintenance costs, without including administrative costs?
Revenues Exceed Operating Expenses (incl. Admin)	Does the airport produce enough operating revenues to cover operating and maintenance costs, including administrative costs?
Capable of Supporting Business Jets	Does the airport have the ability to support business aircraft by providing corporate aircraft ground services and amenities?
FBO	Does the airport provide either an enhanced or basic FBO service depending on the type of airport?
Fuel	Does the airport provide Jet-A and/or 100LL fuel depending on the type of airport?
Food Service/Restaurant	Does the airport provide some type of food service ranging from vending machines to a restaurant depending on the type of airport?
Compatibility	Ability to operate compatibly with surrounding environs
Noise Contour	Does the airport have noise contour maps developed from an Integrated Noise Model that identify those areas beyond airport property that may be subjected to adverse impacts from airport operations, particularly if the areas are subjected to noise at or above the 65 DNL?
Local Comprehensive Plan	Is the airport included in the locally based comprehensive planning efforts in order for the airport to be protected and expanded, if needed?
Airport Influence Areas	Does the airport have Airport Influence Areas, defined as land use controls that limit incompatible land uses, which will ensure safety, security, comfort, and viability of all those involved and protect the opportunity for future enhancements of the airport system?
Height Zoning (FAR Part 77 Surfaces)	Has the airport identified their specific Part 77 Surfaces and has the airport worked with local municipalities to enact appropriate land use controls or zoning to limit the height of objects within the Part 77?
Current Master Plan or ALP	Does the airport have a current master plan and airport layout plan that is representative of all recent changing demands, conditions, or standards? Master plans and ALPs are considered current if they have been prepared within the past 5 years.

Figure 640.04(01) provides an overview of the existing and future performance of each airport and the system overall. It provides a basic "meets objective" or "doesn't meet objective" assessment. For a comprehensive discussion (over 140 pages) on the goals, benchmarks and of how each airport and system overall was assessed it can be found in the reference document, RI/ASP dated December 2004, Section 640.07, (page 07-1 to 07-78), Section 640.08 (page 08-1 to 08-36) and Section 640.09, (page 09 to 0-26).

Figure 640-04(1) Existing and Future Performance of the Rhode Island Airports and System

Benchmarks	EXISTING CONDITIONS										FUTURE CONDITIONS									
	T.F. Green (PR)	North Central (GA-R)	Quonset (GA-R)	Newport (GA)	Westerly (CM)	Block Island (CM)	Primary Service (PR)	General Aviation (GA)	Commercial (CM)	System Total	T.F. Green (PR)	North Central (GA-R)	Quonset (GA-R)	Newport (GA)	Westerly (CM)	Block Island (CM)	Primary Service (PR)	General Aviation (GA)	Commercial (CM)	System Total
Performance Measures	**By Airport**						**By System**				**By Airport**						**By System**			
Ground Accessibility																				
Access Road Functionally Classified	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Auto Parking	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Scheduled Transit Service	●	*NA*	*NA*	*NA*	●	●	●	*NA*	●	●	●	*NA*	*NA*	*NA*	●	●	●	*NA*	●	●
On-site Ground Transportation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Air Accessibility																				
Precision Approach	●	●	●	*NA*	●	●	●	●	●	●	●	●	●	*NA*	●	●	●	●	●	●
Non-precision approach	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
On-site weather reporting capabilities	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Primary Runway Length	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Crosswind Runway Length	●	●	●	●	●	*NA*	●	●	●	●	●	●	●	●	●	*NA*	●	●	●	●
FAA Airport Standards																				
Airport Reference Code	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Runway / Taxiway Separation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
"Good" Pavement Condition	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Runway Safety Area (RSA)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Primary Surfaces	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Runway Protection Zone (undeveloped or airport land)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Runway Objective Free Area (ROFA)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unobstructed Approaches	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Security	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Environmental Compliance																				
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Underground Storage Tank(UST) Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wildlife Management Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stormwater Pollution Prevention Plan (SWPPP)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Underground Injection Control (UIC) Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hazardous Materials Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Air Quality: On Airport	*PENDING*										*PENDING*									
Air Quality: Off Airport	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Vegetation Management Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Airport Capacity																				
Runway System Capacity	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hangar Aircraft Storage /1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aircraft Apron /1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Terminal/Administration Building	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Economic																				
Revenues Exceed Operating Expenses (excl. Admin)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Revenues Exceed Operating Expenses (incl. Admin)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Capable of Supporting and Promoting Aviation Activity:																				
Maintenance Services (FBO)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fuel Services	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Food Services	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Compatibility Planning																				
Integrated Noise Model Mapping	●	NA	NA	NA	NA	NA	●	NA	NA	●	●	NA	NA	NA	NA	NA	●	NA	NA	●
Local Comprehensive Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Airport Influence Areas	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Height Zoning (FAR Part 77 Surfaces)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Current Master Plan or ALP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Notes:

1. There are projects currently in the RIAC Capital Improvement Plan (CIP) or under construction that address airport and system performance identified above as "Does Not Meet Objective" under *Existing Conditions* but will or may result in "Meets Objective" under *Future Conditions* .
2. There is an EIS in progress to evaluate the environmental impacts of the Airport Layout Plan – "Airfield Development Plan" at T.F. Green that will address development to "Meets Objective" under *Future Conditions* .
3. There is an airport master plan being conducted at the Newport State Airport that will evaluate the airport "Does Not Meet Objectives" items.
4. Certain FAA Airport Standards not achievable because of physical or environmental limitations can be resolved by a special evaluation and documentation requiring FAA approval. In those cases it will be judged under *Future Conditions* as "Meets Objective".
5. Although there are revenue short falls at individual airports, the system overall was considered "Meeting Objective". As a system of airports, under one sponsorship, RIAC, FAA allows redistribution of revenue within the system.
6. The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.06 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.